

# EUROPEAN HELICOBACTER AND MICROBIOTA STUDY GROUP

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and Microbiota Study Group  
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### **Conflict of interest declarations:**

In order to help readers form their own judgments of potential bias in published abstracts, authors are asked to declare any competing financial interests.

Contributions of up to EUR 10.000.- (or equivalent value in kind) per year per entity are considered “Modest”. Contributions above EUR 10.000.- per year are considered “Significant”.

Missing abstracts within the consecutive presentation numbers represent withdrawn papers.

## WORKSHOPS

### SESSION 01: HOT TOPICS IN GUT MICROBIOME AND *H. PYLORI*

#### 01.03.

##### A NOVEL MULTI-EPILOPE-BASED VACCINE AGAINST *HELICOBACTER PYLORI*: EVALUATION OF PROTECTIVE AND THERAPEUTIC EFFICACY

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**Objective:** The persistent and widespread occurrence of *Helicobacter pylori* infection highlights the urgent need for a vaccine. Due to the complex nature of *H. pylori*, achieving an effective vaccine remains difficult. Developing a potent vaccine could play a key role in reducing *H. pylori* infection. This study seeks to examine the protective and therapeutic potential of a new vaccine.

**Materials and Methods:** The vaccine constructs contain B- and T-cell epitopes from 6 conserved virulence factors of *H. pylori*. Altogether 16 epitopes, including B- and T-cells, considering both major histocompatibility complex (MHC) classes, have been selected. The recombinant multi-Epitope-Unit antigen (MEU) has been combined with flagellin as an adjuvant, or the coding sequence of the MEU inserted in the genome of the Modified Vaccinia virus Ankara (MVA). To evaluate the protective and therapeutic efficiency of the antigenic constructs, they have been administered intramuscularly (IM) in mice either prior to the challenge or after infection with *H. pylori*. The efficacy was evaluated according to the infection levels upon immunizations.

**Results:** Both formulations of the MEU, whether adjuvanted with flagellin as an adjuvant or delivered in an MVA vector, showed significant levels of specific antibodies and T-cell responses. Remarkably, administering the protein-based vaccine followed by an MVA booster, or receiving two doses of the MVA vaccine, resulted in total bacterial eradication in both preventive and therapeutic settings.

**Conclusions:** These data highlight the promise of our vaccine as a valuable candidate for preventing and treating *H. pylori* infection. These findings strongly support advancing to toxicology studies, followed by clinical evaluation.

##### **Conflict of interest disclosure:**

B. Kalali: A. Employment (full or part-time); Significant; Iguana Biotechnology. E. Ownership Interest (stock, stock options, patent or other intellectual property); Significant; Iguana Biotechnology. H. Moeini: A. Employment (full or part-time); Significant; Iguana Biotechnology. A. Mostafazadeh: None. V. Wedershoven: A. Employment (full or part-time); Significant; Iguana Biotechnology. E. Ownership Interest (stock, stock options, patent or other intellectual property); Significant; Iguana Biotechnology. C. Schulz: None. P. Malferttheiner: None.

#### 01.04.

##### TOGAS – TOWARDS GASTRIC CANCER SCREENING IMPLEMENTATION IN THE EUROPEAN UNION – WP 4 PILOT STUDY 1

**B. TEPES**<sup>1</sup>, **T. KOFOL BRIC**<sup>1</sup>, **T. STEGNE IGNJATOVIČ**<sup>2</sup>, **A. POPLAS SUSIČ**<sup>2</sup>, **C. DEAN**<sup>3</sup>, **C. O MORAIN**<sup>3</sup>, **M. LEJA**<sup>4</sup>, **R. FARCAS**<sup>5</sup>, **D. DUMITRASCU**<sup>6</sup>, **K. NEUBAUER**<sup>7</sup>, **M. KALAUZ**<sup>8</sup>, **S. MILIĆ**<sup>9</sup>, **M. OBLAK**<sup>1</sup>, **M. OBLAK**<sup>1</sup>

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**Objectives:** *Helicobacter pylori* is a class I carcinogen responsible for 89% of non-cardia gastric cancer.

**Patients and Methods:** A screen and treat application study is ongoing in six EU countries in the asymptomatic age group of citizens in the age between 30 and 34 years. Four different locally validated *H. pylori* IgG serologies and/or urea breath test (UBT) as a test were used. Quadruple bismuth-based 14-day, a 10-day regimen with esomeprazole combined with bismuth quadruple therapy in a single-capsule or 14-day triple eradication therapy were used as the first-line therapy. RED Cap IT platform (pre-treatment questionnaires, treatment protocols, side effects, compliance, complications...) was used to collect data for quality assurance, monitoring, and evaluation.

**Results:** The study is still ongoing. Interim results show a wide variation in response rates to the invitation (ranging from 4.1% in Wroclaw to 45.5% in Ljubljana). Seropositivity/UBT rates vary from 13.9% in Ljubljana to 49% in Latvia. The eradication rates are from 88.2% in Dublin to 96.9% in Ljubljana. No serious adverse events have been reported so far. The differences among study sites are in the organization of invitations, educational campaigns, and dissemination activities, as well as in the time when the study was launched in a certain country.

**Conclusions:** Careful study planning, legal, financial, technical, organizational aspects, and public awareness campaigns should be implemented before the launch of the study. A central data capture system is necessary to implement quality control monitoring. Education and public awareness campaigns aimed at increasing the participation rate are of crucial importance.

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## 01.05.

### THE IMPACT OF ENCAPSULATED FECAL MICROBIOTA TRANSPLANTATION FOR FUNCTIONAL DYSPEPSIA: A RANDOMIZED, PLACEBO-CONTROLLED, DOUBLE-BLINDSTUDY (FMT-FD TRIAL)

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**Objective:** Functional dyspepsia (FD) affects up to 30% of the global population and significantly impairs the quality of life. Recent evidence highlights the role of intestinal microbiota in FD pathogenesis, and fecal microbiota transplantation (FMT) could improve the recipient microbiota and have an impact on management.

**Patients and Methods:** Patients aged 15-70 years with FD defined by Rome IV criteria were enrolled from October 2023 to October 2024 from a tertiary care center in Thailand. Patients were randomized into 2 groups: 1) encapsulated FMT [6 capsules (50 g of stool donor) twice daily for 2 consecutive days], 2) placebo capsules in the same doses. The primary outcome was to assess the efficacy of encapsulated FMT, and the secondary outcome was the impact of encapsulated FMT on quality of life (QoL). Patients' stool and gastric juice before and after FMT were also collected for microbiome analysis.

**Results:** A total of 14 patients (mean age 43.06 ± 16.1 years; 71.4% women) were randomized into either the FMT or placebo group. Baseline demographic data and dyspepsia scores were well-matched between groups. At week 8, the FMT group showed significant improvements in SODA scores for non-pain domain [mean difference: -4.75 (-6.92 to -2.57) vs. -0.71 (-3.5 to 2.09); *p*-value=0.016] and satisfaction domain [mean difference: 2.63 (1.14 to 4.10) vs. 0.14 (-0.98 to 0.27); *p*-value=0.008]. Alpha diversity significantly increased after FMT encapsulation, with a marked decrease in Proteobacteria and an increase in *Firmicutes* and *Fusobacterium*, aligning with donor microbiota trends. No serious adverse events were reported.

**Conclusions:** Encapsulated FMT demonstrated significant improvement in non-pain symptoms, patient satisfaction, and improvement of microbiota, suggesting its potential as a novel emerging therapeutic option with safe and favorable outcomes for FD patients.

**Conflict of interest disclosure:**

R. Vilaichone: None. N. Aumpan: None. V. Mahachai: None. P. Bongkotvirawan: None.

## SESSION 02: ONCOBIOME (PARALLEL SESSION)

### 02.03.

#### FECAL MICROBIOTA TRANSPLANTATION IN THE MANAGEMENT OF IMMUNE CHECKPOINT INHIBITOR-ASSOCIATED COLITIS AND DIARRHEA

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**Objective:** Immune checkpoint inhibitors (ICIs) cause gastrointestinal adverse events (irAEs) in approximately 40% of patients, particularly diarrhea and colitis, often leading to therapy discontinuation. One-third of patients do not respond to first-line treatment with high-dose corticosteroids and require second-line immunosuppressants. As the body of evidence about the role of gut microbiota in the pathogenesis of gastrointestinal irAE grows, fecal microbiota transplantation (FMT) is emerging as a potential treatment for refractory ICI-colitis. The aim of this study is to evaluate the safety and efficacy of FMT in patients with refractory ICI-induced colitis.

**Patients and Methods:** We enrolled patients with steroid- and biologic-refractory ICI-induced colitis referred to our clinic. Patients were treated with FMT *via* colonoscopy following International Clinical Guidelines and were evaluated at 1, 4, 8, and 12 weeks. We collected data on patient characteristics, cancer type, treatment, and its suspension, severity of diarrhea before FMT (graded according to CT-CAE), grade of diarrhea following treatment, and resumption of ICI.

**Results:** Our cohort included 7 patients affected by ICI-induced colitis (grade 1: n=0; grade 2: n=1; grade 3: 5=x; grade 4: n=1). Six patients had to interrupt ICI due to diarrhea/colitis. All patients received a single FMT from healthy donors *via* colonoscopy. Following FMT, diarrhea improved to grade  $\leq 1$  in 6 patients (85%) at weeks 1, 4, 8, and 12 after the procedure, suggesting a sustained effect of microbiome modulation in the medium term.

**Conclusions:** Our findings suggest that FMT may be a promising therapeutic strategy for refractory ICI-colitis. However, larger and randomized studies are warranted.

#### Conflict of interest disclosure:

S. Porcari: None. F. Deutschbein: None. G. Quaranta: None. D. Rondinella: None. W. Fusco: None. L. Masucci: None. G. Schinzari: None. R. Iacovelli: None. F. Cavalcoli: None. C. Ciccicarese: None. M. Sanguinetti: None. G. Tortora: None. G. Gasbarrini: None. A. Gasbarrini: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Takeda SpA, AbbVie, Sandoz SpA. F. Consultant/Advisory Board; Modest; Eisai Srl, 3PSolutions, Real Time Meeting, Fondazione Istituto Danone, SinergieSrl, Board MRGE, Sanofi SpA, VSL3. A. Di Sabatino: None. G. Cammarota: F. Consultant/Advisory Board; Modest; Ferring Therapeutics. M. Lenti: None. G. Ianiro: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Biocodex, Sofar, Malesci, Metagenics, Tillotts Pharma. F. Consultant/Advisory Board; Modest; Ferring Therapeutics, Giuliani, Malesci, Tillotts Pharma.

## 02.04.

**METATRANSCRIPTOMICS REVEALS DISTINCT TUMOR MICROBIOTA IN MICROSATELLITE-STABLE AND UNSTABLE COLORECTAL CANCER**

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**Objective:** Colorectal cancer (CRC) with microsatellite instability (MSI) or microsatellite stability (MSS) represents biologically and clinically different cancer subtypes, with distinct immune features and responses to immune-checkpoint inhibitors. The tumor microbiota may modulate these differences, but its transcriptional activity and role in shaping the tumor immune microenvironment remain largely unknown.

**Patients and Methods:** Metatranscriptomics was performed in tumor samples from 50 CRC patients classified as MSI-High (n=25) or MSS (n=25), according to a microsatellite instability pentaplex marker panel. Microbial taxa and pathways were determined using Kraken2 and HUMAnN3 and compared between groups using multivariable regression analysis adjusted for age and sex (MaAsLin2). Differential gene expression, functional pathway analysis, and immune cell composition of the tumor were analyzed.

**Results:** MSI-H tumors had significantly higher microbial richness than MSS tumors ( $p = 0.0207$ , Chao1 index). Although the overall microbial composition did not distinguish the two CRC subtypes ( $p = 0.127$ , PERMANOVA), MSI-H tumors were significantly enriched in actively transcribing taxa, such as *Prevotella copri* and *Enterocloster boltea*. In contrast, MSS tumors were enriched in taxa such as *Paraburkholderia fungorum*. As expected, MSI-H and MSS tumors showed a distinct immune landscape. Functional analysis of microbial transcripts, together with integrated analyses of the microbe-host interaction, is ongoing to determine the extent to which specific bacterial profiles affect tumor signaling pathways and immune responses.

**Conclusions:** MSI-H and MSS CRC subtypes have distinct transcriptionally active bacterial communities. Elucidating how these taxa influence the tumor transcriptional and immune landscape may uncover microbiome-based diagnostic markers and targets for CRC personalized therapy.

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02.05.

**IMPACT OF ANTIBIOTIC EXPOSURE ON SURVIVAL OUTCOMES IN PATIENTS RECEIVING IMMUNE CHECKPOINT INHIBITORS: A SYSTEMATIC REVIEW AND META-ANALYSIS**

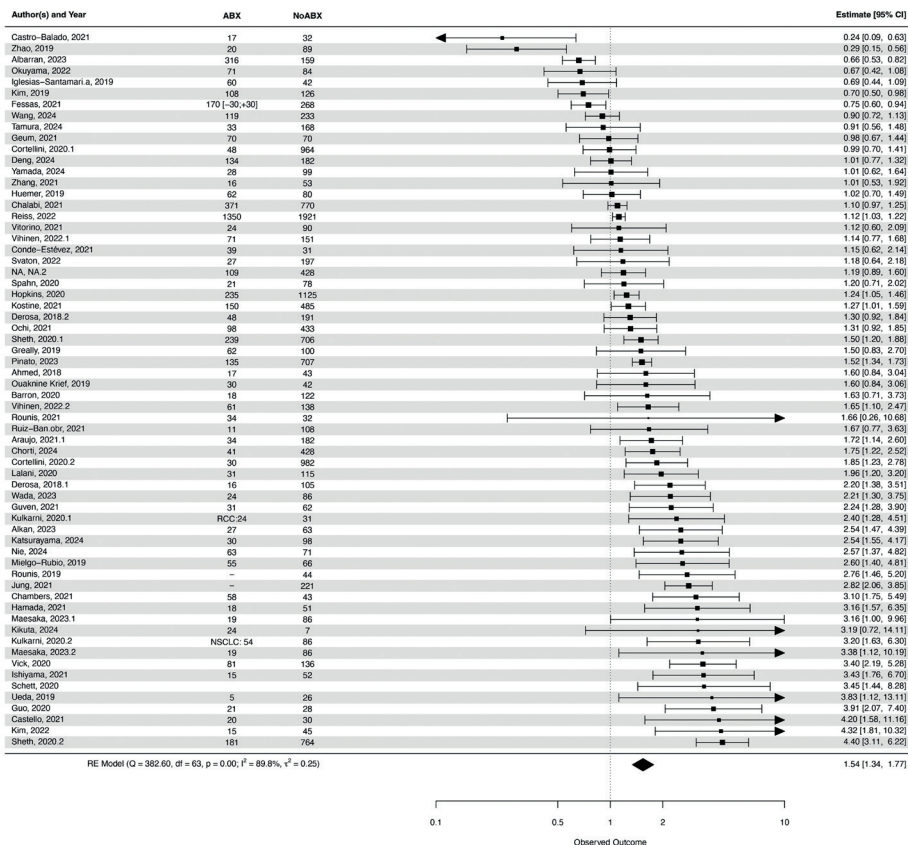
S. PORCARI<sup>1</sup>, M. FERRARI<sup>1</sup>, A. SEVERINO<sup>1</sup>, C. ESPOSITO<sup>1</sup>, A. PEZZULLO<sup>1</sup>, C. NERO<sup>1</sup>, A. STEFANI<sup>1</sup>, E. ROSSI<sup>1</sup>, F. PONZIANI<sup>1</sup>, L. ZITVOGEL<sup>2</sup>, N. SEGATA<sup>3</sup>, A. FAGOTTI<sup>1</sup>, M. SANGUINETTI<sup>1</sup>, R. IACOVELLI<sup>1</sup>, E. BRIA<sup>1</sup>, S. BOCCIA<sup>1</sup>, G. GASBARRINI<sup>1</sup>, A. GASBARRINI<sup>1</sup>, G. TORTORA<sup>1</sup>, G. CAMMAROTA<sup>1</sup>, G. IANIRO<sup>1</sup>  
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**Objective:** Immune checkpoint inhibitors (ICIs) have transformed cancer therapy, yet their efficacy remains heterogeneous and poorly predictable. Emerging evidence suggests that the gut microbiome plays a key role in modulating the immune checkpoint inhibitor (ICI) response. Antibiotics, frequently used in oncology, can disrupt microbiome integrity — diminishing alpha-diversity and promoting dysbiosis — which may impair immune activation and compromise ICI efficacy.

**Materials and Methods:** This systematic review and meta-analysis evaluated the association between antibiotic exposure and survival outcomes — overall survival (OS) and progression-free survival (PFS) — in patients with epithelial tumors treated with ICIs. A comprehensive literature search (PubMed, Scopus, Web of Science, and major oncology conference proceedings) included studies reporting hazard ratios (HRs) for OS and/or PFS stratified by antibiotic use. Data extraction and quality assessment were independently performed by two reviewers. Random-effects models were used to calculate pooled HRs, with heterogeneity assessed *via* the *I*<sup>2</sup> statistic.

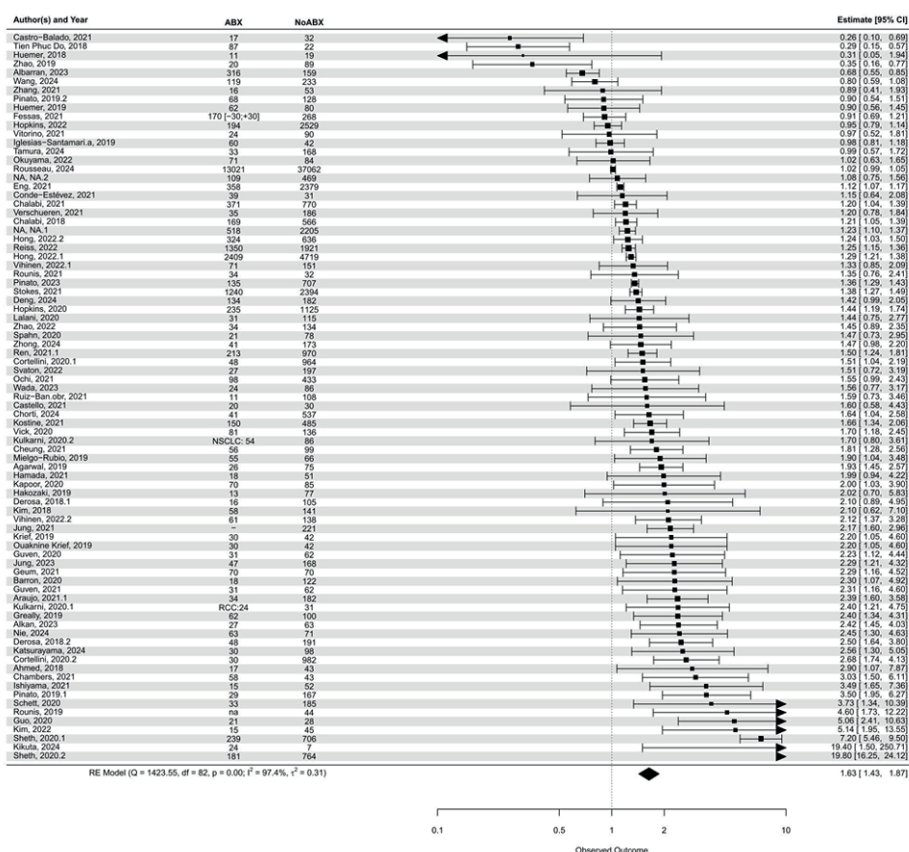
**Results:** Eighty-two studies comprising 82,591 patients were included; 24,331 patients (29.47%) received antibiotics prior to or during ICI therapy. The majority had non-small cell lung cancer (87%), followed by gastrointestinal (3%), urothelial (2.3%), melanoma (1.5%), and renal cell carcinoma (1%). Pneumonia and respiratory infections accounted for 59% of antibiotic indications. Antibiotic exposure was significantly associated with reduced survival: pooled HR for OS was 1.63 (95% CI: 1.43-1.87) and 1.54 (95% CI: 1.34-1.77) for PFS.

**Conclusions:** Antibiotic exposure negatively impacts survival in ICI-treated cancer patients. These findings support cautious, individualized antibiotic use and encourage further research into microbiota-preserving strategies to optimize immunotherapy outcomes.



**FIGURE 1. FOREST PLOT AND POOLED HR FOR PROGRESSION FREE SURVIVAL.**

**FIGURE 2. FOREST PLOT AND POOLED HR FOR OVER-ALL SURVIVAL.**



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## SESSION 03: GASTRIC CANCER (PARALLEL SESSION)

### 03.03.

### E-CADHERIN MUTATIONS ACTIVATE A NUCLEUS-DEPENDENT INVASIVE PROGRAM IN GASTRIC CANCER

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**Objective:** Genetic and epigenetic alterations of E-cadherin (*CDH1*) occur in 60% of gastric carcinomas and result in increased cell invasion and metastasis. However, the mechanisms underlying disease etiology are not understood, perpetuating its poor prognosis. We hypothesized that loss of cell-cell adhesion mediated by E-cadherin mutations causes an imbalance in mechanical loads throughout the actin cytoskeleton, leading to nuclear remodeling and a consequent invasive signature.

**Materials and Methods:** We have established cell lines and *Drosophila* strains expressing wild-type E-cadherin or a novel variant identified in gastric cancer patients. Nuclear architectural and migratory features were evaluated using both transmission electron microscopy and confocal microscopy, combined with advanced bioimaging techniques. RNA sequencing was employed to investigate the molecular program leading to an invasive performance.

**Results:** We verified that cells expressing E-cadherin variants display increased migratory rates *in vivo* when compared with those expressing the wild-type protein. Nuclear morphology assessment revealed that area, perimeter, and circularity are higher in nuclei from E-cadherin mutant cells, indicative of a more relaxed and flexible structure. Mutant E-cadherin further elicited a dispersed chromatin pattern and alterations in proteins of the nuclear pore, suggesting an abnormal nucleocytoplasmic trafficking and a distinct transcriptomic profile. Accordingly, RNA sequencing unveiled an enrichment in genes from the Matrix organization and degradation, secreted proteins, and extracellular region categories, which is consistent with the invasive phenotype exhibited by mutant cells.

**Conclusions:** This work demonstrates that E-cadherin loss affects nuclear architecture, chromatin organization, and transcriptional outputs that can be translated into novel strategies for cancer diagnosis and treatment.

**Conflict of interest disclosure:**

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### 03.04.

#### IMVASION; TARGETING NON-*H. PYLORI* BACTERIAL INVASION OF THE STOMACH DURING INTESTINAL METAPLASIA FOR THE PREVENTION OF GASTRIC ADENOCARCINOMA

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**Objective:** In recent years, sequencing studies have revealed fewer *H. pylori* and more non-*H. pylori* bacteria in *H. pylori*-associated intestinal metaplasia (IM) and gastric adenocarcinoma (GAC) tissue. However, the spatial organization of the gastric microbiota in health and disease is unknown.

**Patients and Methods:** Here, we have combined RNAscope *in situ* hybridization and immunohistochemistry to detect *H. pylori*, as well as non-*H. pylori* bacteria, and host cell markers (E-cadherin, Mucins 5AC and 2) on tissue sections from patients with chronic gastritis (CG) ( $n = 15$ ) and IM ( $n = 17$ ).

**Results:** Quantitative analysis of whole slide scans revealed significant correlations of *H. pylori* and other bacteria in CG and IM. In contrast to sequencing studies, significantly fewer non-*H. pylori* bacteria were detected in *H. pylori*-negative patients. Importantly, whilst *H. pylori* exclusively colonized the gastric glands, non-*H. pylori* bacteria invaded the lamina propria in 6/9 CG and 8/10 IM *H. pylori*-positive patients. A rapid and cost-effective modified Gram stain was used to confirm these findings and enabled the detection of non-*H. pylori* bacteria in IM samples, which we term 'IMvasion'. We also present preliminary data using laser capture microdissection, full-length 16S ribosomal gene sequencing, and RNAscope custom probes to identify invasive bacteria in GAC tissue sections.

**Conclusions:** We propose that *H. pylori*-mediated disruption of the gastric epithelial barrier facilitates opportunistic invasion of non-*H. pylori* bacteria to the lamina propria, promoting inflammatory-mediated carcinogenesis. Given that antibiotic eradication of *H. pylori* during IM does not significantly reduce the risk of GAC, we propose that antibiotic treatment to clear invasive bacteria holds promise as a preventative treatment for GAC.

**Conflict of interest disclosure:**

H. Giddings: None. A. Teodosio: None. J. Jones: None. J. McMurray: None. K. Hunter: None. R. Alame: None. I. Gardiner: None. Z. Abdawn: None. W. Butterworth: None. I. Henderson: None. J. Cole: None. C. Shannon-Lowe: None. A. Rossiter-Pearson: None.

## 03.05.

## THE ROLE OF MUC13 IN GASTRIC CANCER CELL DEATH INHIBITION

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**Objective:** The aim of this study was to investigate *MUC13*-mediated signaling pathways involved in cell death inhibition in gastric cancer (GC).

**Materials and Methods:** We performed *in vitro* experiments using two Laurèns intestinal-type GC cell lines (MKN-7 and ST23132/87), differing in microsatellite instability (MSI; high vs. low). *MUC13* knock-down (KD) was achieved *via* transfection, followed by stimulation with Tumor Necrosis Factor (TNF)- $\alpha$  (50 ng/mL) or interleukin (IL)-1 $\beta$  (80 ng/mL). Cell viability was measured using the MTT assay. Transcriptomic changes were analyzed *via* bulk RNA sequencing and further validated using the publicly available The Cancer Genome Atlas Stomach Adenocarcinoma (TCGA-STAD) dataset.

**Results:** *MUC13* KD resulted in increased cell viability in unstimulated MKN-7 cells, whereas the opposite was seen in unstimulated ST23132/87 cells. Upon inflammation, however, enhanced cell viability was observed in the presence of *MUC13* expression. Transcriptome analysis of inflamed cells revealed the involvement of the epithelial-mesenchymal transition (EMT), IL-2/STAT5, and interferon (IFN) signaling pathways. Further validation using the TCGA-STAD dataset and correlation with clinical parameters is currently ongoing.

**Conclusions:** *MUC13* plays a key role in promoting gastric cancer cell survival, particularly under inflammatory conditions, likely *via* EMT, IL2/STAT5, and IFN pathways. Ongoing validation aims to further define its clinical relevance.

**Conflict of interest disclosure:**

B. Oosterlinck: None. W. Arras: None. J.G. De Man: None. B.Y. De Winter: None. A. Smet: None.

## SESSION 05: PROBIOTICS: A PRACTICAL APPROACH (PARALLEL SESSION)

## 05.03.

**MULTISTRAIN PROBIOTICS PLUS VITAMIN D IMPROVE GUT BARRIER FUNCTION AND GUT MICROBIOTA COMPOSITION IN IRRITABLE BOWEL SYNDROME WITHOUT CONSTIPATION: RESULTS FROM A DOUBLE-BLIND, RANDOMIZED, PLACEBO-CONTROLLED TRIAL**

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**Objective:** This study aims to evaluate the efficacy of a new multi-strain probiotic combined with vitamin D in gut barrier function in IBS without constipation.

**Patients and Methods:** In this phase IIb double-blind randomized placebo-controlled multicenter clinical trial, 35 patients were treated for 12 weeks with OttaBac<sup>®</sup>, a multistrain probiotic plus cholecalciferol, or placebo, and followed up until week 16. Symptoms, quality of life, intestinal permeability tests, fecal biomarkers, and microbiota composition were evaluated at 0, 12, and 16 weeks.

**Results:** Mean zonulin values showed a significant progressive reduction in the active group (-10.2 ng/ml at week 12,  $p=0.0375$ , -19.5 ng/ml at week 16,  $p=0.0002$ ), with a significant difference between groups at week 16 in the per-protocol population (-19.01,  $p=0.0053$ ). The active group showed a more stable trend toward improvement in stool frequency and consistency both at week 12 and 16, with a significant improvement compared to baseline and to the placebo group (-23.2,  $p=0.0265$ , and 5.57 vs. -23.2,  $p=0.0492$ , respectively). No differences were found in lactulose/mannitol ratio, IBS-SSS and SF-36 total scores, PV-1, and citrulline levels. In the active group, *Bifidobacterium animalis* subsp. *lactis* and *Streptococcus thermophilus* were increased ( $p<0.05$ ), while *Lachnospira* were decreased ( $p<0.05$ ), and significant changes in Actinobacteria and Proteobacteria were observed ( $p<0.05$ ). Lactate ( $p<0.01$ ) and acetate ( $p<0.05$ ) increased post-treatment. Correlation analysis showed a significant association between microbial biomarkers and symptoms ( $p<0.05$ ).

**Conclusions:** Probiotic plus vitamin D improves IBS-associated symptoms through gut microbiota modulation and gut barrier enhancement, with persistent benefits after treatment discontinuation.

**Conflict of interest disclosure:**

L. Laterza: F. Consultant/Advisory Board; Modest; Actial farmaceutica, Abbvie, Janssen, Ely Lilly, Biocure, Abivax. C. Cremon: None. L. Putignani: None. G. Barbara: F. Consultant/Advisory Board; Modest; Aboca, Actial Farmaceutica, AB Biotics, Agave, Alfa Sigma, AGPharma, Bayer, Biocodex, Boeringer, Bromatech, Cadigroup, Danone, Diadema, Falk Pharma, GE Healthcare, Giuliani, Mayoly, Malesci, Montereese. A. Gasbarrini: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Abbvie, Alfasigma, Aristeia, Gilead, Lionhealth, Roche, Takeda. F. Consultant/Advisory Board; Modest; Actial Farmaceutica.

**05.04.**

**ANTIMICROBIAL POTENTIAL OF COMMENSAL NEISSERIAE AGAINST HELICOBACTER PYLORI**

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**Objective:** microbiota supports host defenses by limiting pathogen adhesion or secreting interfering bioactive molecules. *Helicobacter pylori*, a key gastric pathogen associated with gastritis, ulcers, and gastric cancer (GC), may be susceptible to such antagonism. Recently, research studies have proved that oral pathogens are necessary in the GC development. The present study investigated the *in vitro* inhibitory activity of secreted factors from selected commensal *Neisseria* species against *H. pylori*.

**Materials and Method:** Three *H. pylori* strains (ATCC 43629, 2A12, 13A13) were microaerophilic cultured. Commensal *Neisseria* strains (*N. flavescens*, *N. lactamica*, *N. cinerea*, *N. macacae*) were grown aerobically. For the overlay assay, the bottom layer of Columbia Blood Agar was supplemented with either live *Neisseria* cells or filtered/ultracentrifugated supernatants. After solidification, a soft agar overlay containing *H. pylori* was poured on top. Plates were incubated under microaerophilic conditions, and bacterial growth was assessed by measuring optical density (OD<sub>600nm</sub>). In co-culture assay, *H. pylori* ATCC was incubated in Brucella Broth with 2% v/v *N. macacae* ultracentrifugated supernatants. Microbial viability was evaluated at 24, 48, and 72 h by CFU method.

**Results:** All *Neisseria* strains except *N. flavescens* inhibited *H. pylori* growth. *N. macacae* showed the strongest effect: its filtered and ultracentrifugated supernatants significantly reduced *H. pylori* growth in both overlay and co-culture assays.

**Conclusions:** *N. macacae* secretes potent inhibitory factors, likely including Outer membrane vesicles or small effectors. These results highlight the potential of certain commensal *Neisseria* strains in counteracting such gastric pathogen.

**Conflict of interest disclosure:**

G. Mantova: None. M. Di Rosario: None. Y. Veneruso: None. L. Continisio: None. E. Scaglione: None. R. Colicchio: None. M. Vitiello: None. P. Salvatore: None. C. Pagliuca: None.

## 05.05.

### COMPARATIVE EFFECTIVENESS AND SAFETY OF PROBIOTICS WITH PSYCHOTROPIC POTENTIAL IN PATIENTS WITH IRRITABLE BOWEL SYNDROME: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

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**Objective:** The use of probiotics as a treatment for irritable bowel syndrome (IBS) is gaining attention, with recent studies indicating that certain probiotics or combinations may have mental health benefits for IBS patients. The aim of the study was to systematically review and meta-analyze, using network meta-analysis (NWM), the comparative effectiveness and safety of probiotics with psychotropic potential on quality of life, depression, and anxiety in patients with IBS.

**Patients and Methods:** Relevant randomized controlled trials (RCTs) were analyzed, using a Bayesian NWM, to compare the performance of probiotics with mental health benefits in IBS treatment. Treatment effectiveness was assessed using surfaces under cumulative ranking (SUCRA) values.

**Results:** The analysis included 22 eligible RCTs, which provided a total of 9 direct and 27 indirect paired comparisons involving 3,154 participants assigned to 9 different treatments: *Bifidobacterium longum*, *Saccharomyces*, *Clostridium butyricum*, *Bifidobacterium lactis*, *Lactobacillus acidophilus*, *Lactobacillus CASEIshirota*, *Lactobacillus plantarum*, probiotic combinations, and placebo. *Bifidobacterium longum* and probiotic combinations were found to be significantly more effective than placebo. In terms of improving QoL, *Bifidobacterium longum* was the most effective (SUCRA=89.7%), while *Lactobacillus plantarum* was the least effective (SUCRA=14.9%). For alleviating depression and anxiety, the combination of probiotics (SUCRA=95.6%) and *Lactobacillus acidophilus* (SUCRA=74.2%) showed the best results, respectively.

**Conclusions:** Some probiotics or combinations may offer benefits for IBS patients in improving QoL, depression, and anxiety. However, as this is a developing field, additional research is necessary to fully understand the effectiveness, underlying mechanisms, and specific strains that may be advantageous. More high-quality RCTs are needed to substantiate these therapeutic possibilities.

**Conflict of interest disclosure:**

T. Rokkas: None. K. Ekmektzoglou: None. E. Tsanou: None. A.E. Menni: None. P. Golfakis: None. K. Kotzampassi: None.

## SESSION 06: H. PYLORI MANAGEMENT (PARALLEL SESSION)

## 06.03.

### INTERIM RESULTS OF INVESTIGATING POSSIBLE NEGATIVE EFFECTS OF HELICOBACTER PYLORI TEST AND TREAT ON OVERALL HEALTH IN A GISTAR STUDY PARTICIPANT COHORT

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**Objective:** A cohort of GISTAR study participants in Latvia (Multicentric randomized study of *H. pylori* eradication and pepsinogen testing for prevention of gastric cancer mortality) was followed up to assess potential negative long-term effects of *H. pylori* test and treat within the EUROHELICAN project.

**Patients and Methods:** Participants invited were enrolled in GISTAR 4-11 years ago, when baseline data and anthropometric measurements were obtained. GISTAR intervention group was tested for *H. pylori* and pepsinogens. *H. pylori* (HP) positives were offered eradication therapy. The control group was not tested and received regular healthcare. During follow-up, data on the same characteristics were collected, and the urea breath test (UBT) was performed for those HP-positive at baseline.

**Results:** A total of 3,440 participants were invited for follow-up, of which 2,090 (60.8%) came (median age 60, IQR 11, 58.9% female). Of these, 1,067 (51.1%) were in the intervention group: 634 (59.4%) HP-positive at baseline, 512 (80.8%) received eradication. At follow-up, 481/512 were tested by UBT, 404/481 (84%) were HP-negative. The incidence of medical events, including emergency hospitalization, GERD, myocardial infarction, stroke, diabetes and other events since baseline and changes in weight, BMI, waist-to-hip ratio were compared between groups: control and intervention, HP-positive and negative, treated and untreated. Interim analysis showed no significant associations between receiving intervention or eradication with possible negative effects. A slightly higher increase in BMI was observed for those untreated compared to treated ( $1.08 \pm 13.4$  and  $1.05 \pm 3.4$  kg/m<sup>2</sup>,  $p=0.03$ ).

**Conclusions:** Interim analysis identified no negative effects associated with *H. pylori* test and treat.

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#### Conflict of interest disclosure:

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## 06.04.

### EFFECTIVENESS OF *HELICOBACTER PYLORI* ERADICATION TREATMENTS IN PRIMARY CARE: INSIGHTS FROM A NATIONAL REAL-WORLD COHORT.

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**Objective:** *H. pylori*, a leading cause of chronic gastritis, peptic ulcers, and gastric cancer, is widely treated in Primary Care, but real-world treatment effectiveness in this setting remains suboptimal. This study evaluated the effectiveness of *H. pylori* eradication regimens prescribed in Primary Care using BIFAP, a Spanish healthcare database.

**Patients and Methods:** Adults ( $\geq 18$  years) diagnosed with *H. pylori* between 2003-2023 and prescribed treatment were included. Guideline-based regimens were evaluated using validated algorithms and confirmed through test results (stool antigen or breath test) within 12 months. Logistic regression adjusted for clinical covariates. Results were compared with data from the Hp-EuReg to contrast with Specialized Care.

**Results:** Among 211,972 identified patients, 30,693 (14%) were included in the effectiveness analysis. The most frequently prescribed first-line regimen in both Primary and Specialised Care was proton pump inhibitor plus a single-capsule with bismuth-tetracycline-metronidazole (Pylera<sup>®</sup>) (PPI+ScBQT). Significant ( $p < 0.01$ ) differences were observed in eradication rates among the regimens. PPI+ScBQT had the highest effectiveness (91%), followed by PPI+clarithromycin (C)-amoxicillin(A)-metronidazole(M) (88%), PPI+C+A (70%), and PPI+C+M (61%). The results aligned with data from Specialised care (Hp-EuReg). Adjusted logistic regression showed PPI+ScBQT was significantly more effective than other regimens, with lower odds ratio (OR) of failure compared to PPI+C+M (OR 0.15), PPI+C+A (0.23), and PPI+C+A+M (0.72), after accounting for age, sex, obesity, peptic ulcer, chronic kidney disease, and smoking.

**Conclusions:** In Primary Care, PPI+ScBQT showed superior effectiveness, followed by PPI+C+A+M. Findings were consistent with Gastroenterology data, supporting the use of bismuth-based quadruple therapy as the most effective first-line option.

**Conflict of interest disclosure:**

O.P. Nyssen\*: Other; Significant; Mayoly, Allergan/Abbvie, Richen, Juvisé and Biocodex. E. Fernández-Antón\*: None. G. Alonso-Martínez: None. P. Parra: None. F.J. de Abajo\*\*: None. J.P. Gisbert\*\*: Other; Significant; Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé and Biocodex.

06.05.

**HAND-HELD, PALM-SIZE BREATHALYZER DEVICE AND NOVEL UBT FOR *H. PYLORI* DETECTION**

**A. RIGAS**

Heteron Biotechnologies, Setauket, NY, United States.

**Objective:** *H. pylori* is a Class I carcinogen and affects 50% of the world population causing peptic ulcer disease and gastric cancer. We have developed an inexpensive, autonomous, hand-held, AI-enhanced breathalyzer device which detects *H. pylori* infection by measuring NH<sub>3</sub> plus CO<sub>2</sub> in breath of patients who ingest either labeled or unlabeled urea. Our device will be offered at point-of-care and for home self-testing allowing for detection of *H. pylori* infection and prevention of gastric cancer. Our objective is to demonstrate that our breathalyzer device and novel UBT correlates with the gold standard UBT.

**Patients and methods:** We completed a double-blinded study with 20 patients, ages 17 to 70, who had symptoms of gastritis and tested with the <sup>13</sup>C-UBT technology and our hand-held device. Additionally, 8 of the 20 patients took our novel <sup>12</sup>C-UBT, which uses natural, unlabeled urea. Both methods followed the same protocol: the subjects exhaled twice, at baseline and 30 minutes after ingestion of urea.

**Results:** 5 patients tested positive and 15 negative. The same 5 tested positive and the same 15 tested negative using our breathalyzer device. Two of 8 patients who took *unlabeled* <sup>12</sup>C-UBT tested positive, and the remaining 6 tested negative by both methods (labeled and unlabeled UBT). We demonstrated 100% correlation with the gold standard <sup>13</sup>C-UBT technology (spectrometry) and had 100% sensitivity and specificity. Our device achieved 100% accuracy of classification.

**Conclusions:** We have developed novel, self-testing technology for the detection of *H. pylori*, which will reduce healthcare cost, while saving lives. Over 200 subject study is underway.

**Conflict of interest disclosure:**

A. Rigas: E. Ownership Interest (stock, stock options, patent or other intellectual property); Significant; Heteron Biotechnologies.

## SESSION 08: FMT (PARALLEL SESSION)

08.03.

**BIOVIGILANCE IN FAECAL MICROBIOTA TRANSPLANTATION: A COHORT STUDY AND FRAMEWORK FOR MICROBIOLOGICAL ASSESSMENTS OF INFECTIOUS ADVERSE EVENTS**

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tology, Amsterdam University Medical Centers, VU University Medical Center, Amsterdam, Netherlands, <sup>5</sup>Center for Microbiota Analyses and Therapeutics, Leiden University Center for Infectious Diseases, LUMC, Leiden, Netherlands, <sup>6</sup>Leiden University Center for Infectious Diseases, Leiden University Medical Center, Leiden, Netherlands, <sup>7</sup>Department of Internal Medicine, and department of Medical Microbiology and Infectious Diseases, Erasmus Medical Center, Rotterdam, Netherlands, <sup>8</sup>Department of Hematology, University Medical Center Groningen (UMCG), University of Groningen, Groningen, Netherlands, <sup>9</sup>Department of Hematology, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands, <sup>10</sup>Department of Gastroenterology and Hepatology, LUMC, Leiden, Leiden, Netherlands.

**Objective:** A structured approach for assessing potential infectious (serious) adverse events (SAEs) after faecal microbiota transplantation (FMT) has not yet been adopted, potentially leading to underreporting. This study systematically evaluates all observed adverse events (AEs) at the Netherlands Donor Feces Bank (NDFB) over seven years, emphasizing SAEs and infectious SAEs, and introduces a structured approach.

**Patients and Methods:** This prospective observational cohort study included patients who received frozen donor faecal suspensions from the NDFB between May 2016 and December 2023, for recurrent *Clostridioides difficile* infection (rCDI) or other indications via an extended access program (EAP). Physicians reported (S)AEs to the NDFB. Following informed consent, patients underwent structured follow-up at three weeks, three months, and six months using standardised questionnaires.

**Results:** In total, 290 rCDI patients (322 FMTs) and 35 EAP patients (75 FMTs) were evaluated, yielding 455 reported AEs, predominantly gastrointestinal side effects (336, 74%). Infectious AEs occurred in 11% and 10% of EAP and rCDI patients ( $p=0.8$ ). Infectious SAEs were more frequent in EAP (29% vs 11%;  $p=0.006$ ), reflecting the higher vulnerability of this immunocompromised population. Of 15 presumed infectious (S)AE, only two were definitively related to FMT after review by NDFB and an external infectious disease specialist. Based on NDFB experience, we propose a structured approach for managing infectious SAEs, aligned with evolving safety standards for human-derived substances.

**Conclusions:** SAEs incidence post-FMT appears disease-dependent, with EAP patients at higher risk. Structured follow-up and investigation of infectious AEs are essential to the safe use of FMT and faecal microbiota products (FMP).

**Conflict of interest disclosure:**

V.O. Chernova: None. J. van Prehn: None. B. Groenewegen: None. E. van Lingen: None. K.E.W. Vendrik: None. R.E. Ooijevaar: None. E.J. Kuijper: None. M.M.C. Lambregts: None. E. van Nood: None. G. Choi: None. M.D. Hazenberg: None. J.J. Keller: None. E.M. Terveer: None.

## 08.04.

### INFORMED THERAPEUTIC MICROBIOME MODULATION FOR POST-INFECTIOUS IRRITABLE BOWEL SYNDROME: A PILOT EXPERIENCE OF A MICROBIOME CLINIC

W. FUSCO, G. CATASSI, F. DE MAIO, S. PORCARI, A. SEVERINO, A. SIBILLA, G. QUARANTA, I. VENTURINI, L. MASUCCI, M. SANGUINETTI, G. GASBARRINI, A. GASBARRINI, G. CAMMAROTA, G. IANIRO

Policlinico Universitario A. Gemelli, Rome, Italy.

**Objective:** Irritable bowel syndrome (IBS) is one of the most prevalent chronic disorders worldwide. Gut microbiome impairment is one of the potential pathogenic pathways of IBS, especially in its post-infectious form (PI-IBS). To date, untargeted microbiome modulation has achieved conflicting results in this condition, while the microbiome inter-individual variability supports its personalized manipulation. In this study we performed microbiome-profiling in order to have a precision, microbiome-based approach to PI-IBS.

**Patients and Methods:** In this pilot, prospective, single-center, case-control study, our aim was to describe outcomes of targeted microbiome modulation, informed by gut microbiome testing, in PI-IBS patients compared with a control group treated empirically. PI-IBS was diagnosed according to Rome IV criteria. At baseline visit, a 16S-rRNA stool test was prescribed to cases. After results, patients received a personalized treatment to target specific gut microbial defects, while controls received empirical treatment.

**Results:** Overall, 33 patients (13 cases and 20 controls) were enrolled. All cases and 11 of 20 controls (55%) experienced treatment response, with a significant difference between groups ( $p < 0.0001$ ). The mean IBS-SSS score after treatments was 163 in cases and 231 in controls ( $p = 0.01$ ). The mean reduction in IBS-SSS score was 167 in cases and 74 in the control group ( $p = 0.001$ ). Compared with controls, cases experienced significantly lower IBS-SSS subscores after treatments for satisfaction of bowel habits ( $p = 0.03$ ), bloating ( $p = 0.04$ ) and quality of life ( $p = 0.009$ ). This pilot study represents the first microbiome-based and personalized approach to PI-IBS.

**Conclusions:** Our preliminary findings suggest this strategy might be effective in managing PI-IBS.

**Conflict of interest disclosure:**

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## 08.05.

### FECAL MICROBIOTA TRANSPLANTATION FOR SEVERE AND SEVERE-COMPLICATED C. DIFFICILE INFECTION: A 10-YEAR EXPERIENCE FROM A REFERRAL CENTRE

A. SEVERINO, L. MASUCCI, S.A. MARCHITTO, F. DEUTSCHBEIN, S. PORCARI, S. BIBBÒ, G. QUARANTA, D. RONDINELLA, I. VENTURINI, W. FUSCO, M. SANGUINETTI, G. GASBARRINI, A. GASBARRINI, G. CAMMAROTA, G. IANIRO

Fondazione Policlinico Universitario Agostino Gemelli, Rome, Italy.

**Objective:** *Clostridioides difficile* infection (CDI) includes severe clinical pictures of the disease. Fecal microbiota transplantation (FMT) is an established treatment for recurrent CDI, but its role in severe clinical pictures of CDI is still not well defined.

**Patients and Methods:** Our aim is to report efficacy and safety of FMT in a large cohort of patients with severe and severe-complicated CDI. We included patients with severe CDI treated with FMT at our center from June 2013 to August 2024. Severe and severe-complicated CDI were defined according to international guidelines. Enrolled patients were followed up at 12 weeks after the last FMT. The primary outcome was the clinical resolution of CDI at 8 weeks after FMT, while the secondary outcomes were the overall survival at 90 days and the safety of FMT. Donor stools were screened following international guidelines. FMT procedures were carried out by colonoscopy using a single-donor solution.

**Results:** 125 patients were enrolled. One hundred and ten patients had severe CDI, and 15 had severe complicated CDI. Of them, 73 patients had pseudomembranous colitis. A sequential FMT protocol was performed in 62 patients, for a total of 235 FMT procedures. Overall, 108 patients experienced resolution of CDI. 18 patients died within the follow-up period. No deaths were attributable to FMT. Severe adverse events occurred in 11 patients and 6 were potentially associated with FMT and/or failure to cure CDI.

**Conclusions:** In our cohort of patients, FMT was a highly effective and safe treatment for severe and severe-complicated CDI.

**Conflict of interest disclosure:**

A. Severino: None. L. Masucci: None. S.A. Marchitto: None. F. Deutschbein: None. S. Porcari: None. S. Bibbò: None. G. Quaranta: None. D. Rondinella: None. I. Venturini: None. W. Fusco: None. M. Sanguinetti: None. G. Gasbarrini: None. A. Gasbarrini: None. G. Cammarota: None. G. Ianiro: None.

## SESSION 09: HP AND NON-HP RELATED GASTRITIS (PARALLEL SESSION)

### 09.03.

#### S. ANGINOSUS INDUCES GASTRIC INFLAMMATION IN GERM FREE INS-GAS MICE

Z. SHEN<sup>1</sup>, J. DZINK-FOX<sup>1</sup>, M. BOUCHER<sup>1</sup>, Y. FENG<sup>1</sup>, Z. GE<sup>1</sup>, A. J. MANNION<sup>1</sup>, B. M. PIAZUELO<sup>2</sup>, R. M. PEEK<sup>2</sup>, K. T. WILSON<sup>2</sup>, J. G. FOX<sup>1</sup>

<sup>1</sup>Massachusetts Institute of Technology, Cambridge, MA, United States, <sup>2</sup>Vanderbilt University Medical Center, Nashville, TN, United States.

**Objective:** Gastric non-*H. pylori* bacteria have been reported to modulate *H. pylori*-induced gastric disease in transgenic FVB/N insulin-gastrin (INS-GAS) mice. A recent report indicated that *Streptococcus anginosus* was enriched in the gastric mucosa of patients with gastric cancer; it also colonized the mouse stomach, induced gastritis, mucinous metaplasia and dysplasia in conventional B6 mice. These findings were confirmed in germ-free Balb/C mice. In the current study, germ free INS-GAS mice were used to further investigate the pathogenic potential of *S. anginosus*.

**Materials and Methods:** Eighteen germ free INS-GAS mice of both genders were used; nine mice were infected with *S. anginosus* human isolate MIT-14-1787-A7 by oral gavage with  $1 \times 10^8$  bacteria, nine mice were used as non-infected controls. Mice were maintained under germ free conditions and necropsied at 4 months post-infection. Bacteria colonization levels, stomach pathology scores, and pro-inflammatory cytokine gene expression levels of the stomach tissues were evaluated.

**Results:** *S. anginosus* persistently colonized the gastrointestinal tracts of all dosed INS-GAS mice 4 months post-infection with median CFU of  $1 \times 10^4$ /mg of stomach tissues. There was no significant difference in the colonization levels between male and female mice. Infected mice had increased stomach-to-body weight ratios. 3 out of 5 infected male mice had elevated pro-inflammatory cytokine Il1b expression. 6 out of 9 infected mice had an increase in gastric submucosal inflammatory cell infiltrate compared to control mice.

**Conclusions:** This study suggests *S. anginosus* may play a role in the development of inflammation in INS-GAS germ-free mice.

#### Conflict of interest disclosure:

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### 09.04.

#### NON-HELICOBACTER PYLORI HELICOBACTER (NHPH) SPECIES IN GASTRIC BIOPSIES FROM GREEK SYMPTOMATIC PATIENTS

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**Background:** Non-*Helicobacter pylori* Helicobacter (NHPH) species can naturally colonize the gastrointestinal tract of animals and may contribute to human gastric pathology. The aim of the study was to optimize and validate a SYBR-Green-based qPCR strategy for rapid and accurate determination of the most prevalent NHPH in human gastric biopsies namely, *H. heilmannii*, *H. bizzozeronii*, *H. salomonis*, *H. ailurogastricus*, *H. felis*, and *H. suis*.

**Materials and Methods:** Genomic DNA from reference NHPH strains (*F. Haesebrouck*) and species-specific primer combinations for *ureA*, *ureB*, *ureAB*, and *IpsA* genes were utilized. Respective internal control standards were prepared by TOPO cloning. We assessed the SYBR-Green-based qPCRs for both

accuracy and reproducibility, considering variations within and between days. PCR analysis specific for NHPH and *Helicobacter pylori* (*H. pylori*) was performed in 257 gastric biopsies from symptomatic Greek adults (N=104) and children (N=153) patients.

**Results:** *H. pylori* was determined in 21.5% of samples (adults 43.1%, children 6.7%). NHPH presence detected was as follows: *H. heilmannii* (adults 7.7%, children 29.4%), *H. bizzozeroni* (adults 0.96%, children 1.3%), *H. salomonis* (adults 12.5%, children 13.7%), *H. ailurogastricus* (adults 15.3%, children 19%), *H. felis* (adults 0%, children 1.3%), and *H. suis* (adults 5.8%, children 5.9%). *H. pylori*-NHPH co-detection was present in 7.4% of the cases. No cross-reactivity was observed among *Helicobacter* species, and selected positive cases were verified by Sanger sequencing.

**Conclusions:** SYBR-Green-based qPCR assay proved to be rapid and reliable in highlighting the potential presence of NHPH in human biopsies. Further research is warranted to better understand occupational exposure to animals or identify divergent exposure routes in NHPH colonization.

**Conflict of interest disclosure:**

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## 09.05.

### A PROSPECTIVE MULTICENTER SURVEILLANCE OF NON-HELICOBACTER PYLORI HELICOBACTER INFECTION IN MEDICAL CHECKUP INDIVIDUALS IN JAPAN

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**Objective:** Non-*Helicobacter pylori* *Helicobacter* species (NHPH) infection has been reported to be involved in some *Helicobacter pylori*-negative diseases, but the actual state of infection is scarce. Therefore, we conducted a survey of NHPH infection.

**Patients and Methods:** We enrolled 673 consecutive individuals who underwent gastric endoscopy during an annual medical checkup at four Japanese institutes. Intra-gastric fluid and serum samples were collected for NHPH infection detection using PCR and serological tests, respectively. A positive result in real-time PCR targeting NHPH-specific 16S rRNA was defined as NHPH-positive. In addition, real-time PCR targeting the *H. suis*-specific hsvA gene was defined as *H. suis*-positive.

**Results:** The prevalence of NHPH was 3% (20/673); 70% (14/20) were infected with *Helicobacter suis*, and the rest (6/20) were infected with non-*H. suis* NHPH species. All 14 *H. suis*-infected individuals were men and had a history of pork offal ingestion. Of the non-*H. suis* NHPH-infected individuals, 50% (3/6) had a history of owning pet cats, which is higher than the 22% (145/667) observed among other individuals. Endoscopic observation indicated that marbled crack-like gastritis was in 93% (13/14) in the *H. suis*-infected individuals, significantly higher than that in the *H. pylori*-infected (28.6%) and -eradicated (27.6%) groups. Furthermore, endoscopic findings characteristic of NHPH-infected gastritis were antrum predominant and caused milder atrophy than *H. pylori* gastritis.

**Conclusions:** This study provides significant information on NHPH infection, which is important in the post-*H. pylori* era.

TABLE 1. CHARACTERISTIC ENDOSCOPIC FINDINGS OF *H. PYLORI* AND NHPH INFECTION.

Endoscopic findings	No <i>Helicobacter</i> infection (n=378)	Post-eradication (n=254)	<i>H. pylori</i> -infection (n=21)	<i>H. suis</i> -infection (n=14)	Non- <i>H. suis</i> NHPH-infection (n=6)
Normal	317 (83.9%)	5 (2.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Atrophic gastritis	53 (14.0%)	248 (97.6%)	21 (100.0%)	14 (100%)	4 (66.7%)
Nodular gastritis	0 (0.0%)	7 (2.8%)	4 (19.0%)	6 (42.9%)	3 (50.0%)
White marble appearance	15 (4.0%)	49 (19.3%)	4 (19.0%)	11 (78.6%)	1 (16.7%)
Crack-like mucosa	29 (7.7%)	22 (8.7%)	3 (14.3%)	12 (85.7%)	1 (16.7%)
Marbled crack-like gastritis	40 (10.6%)	70 (27.6%)	6 (28.6%)	13 (92.9%)	2 (33.3%)

**Conflict of interest disclosure:**

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## SESSION 11: MICROBIOTA IN CHRONIC NON-COMMUNICABLE DISORDERS (PARALLEL SESSION)

### 11.03.

#### DYNAMIC INTERACTIONS BETWEEN BACTERIA AND FUNGI IN THE GUT MICROBIOTA REVEALED THROUGH A COMMUNITY MERGING ANALYSIS APPROACH.

**K. LEHR**<sup>1</sup>, **R. VILCHEZ-VARGAS**<sup>2,1</sup>, **J. SKIECEVICIENE**<sup>3</sup>, **N.M. HIPLER**<sup>1</sup>, **A. GECIONIENE**<sup>4,3</sup>, **L. KUCINSKAS**<sup>5</sup>, **M. URBA**<sup>4</sup>, **C. THON**<sup>1</sup>, **D. SCHANZE**<sup>6</sup>, **M. ZENKER**<sup>6</sup>, **J. KUPCINSKAS**<sup>4,3</sup>, **A. LINK**<sup>1</sup>

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**Objectives:** Bacteria are key mediators of health and disease; however, the interkingdom interactions between bacteria and fungi remain poorly understood. This study aimed to investigate the interactions between bacterial and fungal communities in the gut of healthy monozygotic and dizygotic twins using a novel merging analysis approach.

**Patients and Methods:** Faecal samples from 106 twin pairs were analyzed using 16S rRNA gene sequencing (bacteria) and ITS sequencing (fungi). A new merging normalization approach enabled integrated analysis of both communities, addressing disparities in read depth.

**Results:** The approach allowed thorough comparisons despite low fungal read counts. Bacteria were more abundant and diverse than fungi, with *Bacteroides* and *Prevotella* dominating. Among fungi, *Candida* was most abundant, followed by *Geotrichum*, while *Saccharomyces* was less common. Other fungal genera appeared sporadically. Most bacterial taxa negatively-correlated with *Candida* at varying levels. *Prevotella* ( $\rho=-0.16$ ,  $p=0.02$ ), *Alistipes* ( $\rho=-0.16$ ,  $p=0.02$ ), and *Faecalibacterium* ( $\rho=-0.17$ ,  $p=0.01$ ) exhibited antagonistic interactions in abundance-dependent manner but even at low abundances. Network analysis revealed complex dynamics, with *Bacteroides*, *Prevotella*, and *Candida* showing mutually antagonistic relationships. *Prevotella* has a very strong antagonism to *Candida*, but also to most other bacteria. *Bacteroides*, on the other hand, showed little correlation with *Candida*, but is fully embedded in the bacterial community and positively associated with many less abundant bacteria, all of which are antagonists of *Candida*.

**Conclusions:** The simple community-merging analysis provided a detailed view of interactions between bacterial and fungal communities in the human gut. The observed antagonistic interactions suggest a potential mechanism by which bacteria protect the gut from fungal colonization.

**Conflict of interest disclosure:**

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#### 11.04.

### A PROOF-OF-CONCEPT STUDY ON GUT AND SALIVA MICROBIOTA PROFILING IN PATIENTS WITH METABOLIC SYNDROME, TYPE 2 DIABETES AND OBESITY

L. PUTIGNANI<sup>1,2</sup>, E. CAPRISTO<sup>3</sup>, M. SCANU<sup>2</sup>, A. PIAZZESI<sup>2</sup>, F. DEL CHIERICO<sup>2</sup>, E. RINNINELLA<sup>3</sup>, V. MORA<sup>3</sup>, G. IANIRO<sup>3</sup>, A. GASBARRINI<sup>3</sup>

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**Objective:** A prospective proof-of-concept clinical study, at an early-phase evaluation, was discussed to assess the salivary and gut microbiome profiles of patients affected by metabolic syndrome (MS), including type 2 diabetes (T2D) and obesity.

**Patients and Methods:** Ninety-three patients (31 T2D, 30 T2D with obesity, and 32 obese) were longitudinally evaluated at screening, inclusion, visit 1 (30 days), and visit 2 (60 days) time-points. Forty-five healthy subjects, considered as controls (CTRLs), were recruited on a single visit. Metagenomics- and metataxonomy-based profiling of gut and salivary microbiomes were provided for 722 patient specimens, 361 faecal and 361 salivary samples and for a whole of 90 CTRLs samples, 45 for each microbiome site. Machine learning identified microbial biomarkers at each study point, while correlation analyses established relationships amongst oral and gut communities. Resistome, virulome, and metabolome were described for the gut microbiome, while PICRUSt predicted metabolic pathways of the salivary microbial community.

**Results:** Alfa- and beta-diversity showed a higher impact of obesity, compared to T2D and T2D plus obesity phenotypes, on gut microbiome ecology, while both obesity and T2D affected oral ecology, as retrieved by the pairwise-comparison with CTRLs. At inclusion time for T2D, T2D plus obesity *Butyrivibrio* appeared decreased, while for obese, only at visit 1. *Parvimonas* seemed increased for T2D, T2D plus obesity and obese subjects at visit 1 and visit 2.

**Conclusions:** Profiling of oral and gut microbiomes may allow us to identify microbial biomarkers associated with crucial metabolic pathways or responsible for differential responsiveness to MS therapy.

**Conflict of interest disclosure:**

L. Putignani: None. E. Capristo: None. M. Scanu: None. A. Piazzesi: None. F. Del Chierico: None. E. Rinninella: None. V. Mora: None. G. Ianiro: None. A. Gasbarrini: None.

#### 11.05.

### INVESTIGATING THE MODULATION OF THE MICROBIOTA-GUT-BRAIN AXIS IN RELATION TO GLIOBLASTOMA.

S. LAVIELLE<sup>1</sup>, G. DELROT<sup>1</sup>, M. HAYKAL<sup>1</sup>, S. LILLO<sup>1</sup>, I. PATERAS<sup>2</sup>, M. NIKOLSKI<sup>1</sup>, T. DAUBON<sup>1</sup>, O.C.B. MARTIN<sup>1</sup>

<sup>1</sup>University Bordeaux, CNRS, IBGC, UMR 5095, Bordeaux, France, <sup>2</sup>2nd Department of Pathology, "Attikon" University Hospital, Medical School, National and Kapodistrian University of Athens, Athens, Greece.

**Objective:** Glioblastoma (GB) is the most common subtype of glioma in adults. Despite treatment through tumor resection associated with chemo- and radiotherapies, this cancer still has a very poor prognosis. Factors contributing to etiology, pathogenesis, or treatment resistance are not well known. Our project aims to understand how modulation of gut physiopathology (i.e., gut inflammation or microbiota dysbiosis) affects GB development and therapeutic resistance.

**Patients and Methods:** We have examined the relationship between gut inflammation, microbiome modulation, GB development, and therapeutic resistance. Mice received dextran-sulfate sodium (DSS), a gut pro-inflammatory agent, and were orthotopically injected with mGB2 GB cells. Some mice were then resected and treated by radio and chemotherapy using Temozolomide (TMZ). Brain and colon samples were analyzed by RNA sequencing and histological staining. The composition of the gut microbiota was evaluated by 16S metabarcoding. Each dataset was analyzed separately and then integrated using multi-omics data integration methods.

**Results:** Our results showed that DSS-treated mice had a higher GB growth than non-treated mice. Moreover, the recurrence after treatment was higher in mice bearing gut inflammation. Interestingly, we also observed on DSS-treated mice that the GB-bearing mice had lower intestinal inflammation than the control. GB growth was also associated with microbiota modifications, which were restored by the treatment.

**Conclusions:** Altogether, our results support the bidirectional communication between the gut and the brain in the context of GB. Alteration of gut physiopathology strongly impacts GB development and therapeutic resistance. This connection suggests that targeting the gut microbiome could slow down GB progression and/or improve treatment efficacy.

**Conflict of interest disclosure:**

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## SESSION 12: *H. PYLORI* AND MICROBIOTA: AN EVOLUTIONARY PERSPECTIVE (PARALLEL SESSION)

### 12.03.

#### LONG-TERM RISK OF GASTRIC CANCER AFTER *HELICOBACTER PYLORI* ERADICATION IN GASTRIC ULCER PATIENTS: A NATIONWIDE COHORT STUDY IN KOREA

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The Catholic University of Korea, Seoul, Korea, Republic of.

**Objective:** *Helicobacter pylori* (*H. pylori*) eradication reduces gastric cancer risk, but the long-term impact in peptic ulcer patients, particularly those with gastric ulcers (GU), remains unclear. We were to assess the long-term incidence of gastric cancer in patients with *H. pylori*-treated gastric ulcers compared to the general population and to patients with duodenal ulcers (DU).

**Patients and Methods:** Using Korea's National Health Insurance Service database, we identified patients aged  $\geq 40$  years with endoscopically and histologically confirmed peptic ulcers treated for *H. pylori* between 2005 and 2008. Follow-up continued until 2019. Standardized incidence ratios (SIRs) for gastric cancer were calculated by comparing incidence in the study cohorts with the age- and sex-matched general population.

**Results:** Among 166,260 eligible patients (median follow-up 9.2 years), 2,630 (1.58%) developed gastric cancer (SIR, 1.20; 95% CI, 1.15-1.24;  $p < 0.001$ ), with consistently elevated risks across all age groups. Although cancer incidence remained elevated up to 12 years, patients followed for  $\geq 13$  years exhibited a significantly reduced risk compared to the general population (SIR, 0.78; 95% CI, 0.60-0.99;  $p = 0.049$ ). In a sensitivity analysis, duodenal ulcer patients ( $n = 46,602$ ) showed a lower overall risk (SIR, 0.86; 95% CI, 0.78-0.94;  $p < 0.001$ ), with significant reductions even before 13 years of follow-up.

**Conclusions:** Gastric ulcer patients remain at increased risk for gastric cancer following *H. pylori* treatment. However, this risk declines over time and may fall below that of the general population after 13 years. These findings support the need for long-term surveillance in this high-risk group.

**Conflict of interest disclosure:**

J. Park: None. S. Myeong: None. J. Kim: None. Y. Cho: None.

## 12.04.

**GASTRIC MICROBIOTA PROFILING IN PATIENTS WITH MULTIDRUG-RESISTANT *HELICOBACTER PYLORI* INFECTION**A. HANAFIAH<sup>1</sup>, A. SUKRI<sup>1</sup>, M. ASMAWI<sup>1</sup>, H. YUSOFF<sup>1</sup>, R. RAJA ALI<sup>2</sup><sup>1</sup>The National University of Malaysia, Kuala Lumpur, Malaysia, <sup>2</sup>Sunway University, Selangor, Malaysia.

**Objective:** Eradication therapy for *Helicobacter pylori* is increasingly challenged by the emergence of multidrug-resistant (MDR) strains, with recent evidence suggesting that the surrounding gastric microbiota may influence treatment outcomes. This study aimed to determine the composition of gastric microbiota in patients infected with multidrug-resistant *H. pylori* strains with a history of eradication failure.

**Materials and Methods:** Gastric biopsies were collected from two groups of patients. Group 1 included patients infected with *H. pylori* strains resistant to metronidazole, clarithromycin, and levofloxacin, while Group 2 comprised those with resistance to metronidazole, clarithromycin, and amoxicillin. DNA extracted from these biopsies underwent shotgun metagenomic sequencing.

**Results:** Microbial diversity of Group 2 was more diverse than Group 1. At domain level, 98% of sequences for both groups belonged to prokaryotes, while  $\leq 2\%$  sequences belonged to eukaryotes or virus. Gammaproteobacteria were detected in Group 2. At phylum level, firmicutes sequences were detected in Group 1. Comparison at genus level reveals that *Staphylococcus* genus was enriched in Group 2, but this taxon was not detected in Group 1. At species level, both groups demonstrated richness in *Helicobacter pylori* sequences. However, *Stenotrophomonas maltophilia*, and *Cupriavidus necator* were only detected in Group 2. Meanwhile, *Staphylococcus capitis*, *Staphylococcus haemolyticus*, and *Streptococcus suis* were only detected in Group 1. Analysis of non-bacterial sequences shows that both groups had *Babesia bigemina* sequences.

**Conclusions:** This study highlights distinct differences in gastric microbiota composition depending on *H. pylori* resistance patterns. Further research is warranted to clarify how microbial communities may contribute to antibiotic resistance and eradication failure.

**Conflict of interest disclosure:**

A. Hanafiah: None. A. Sukri: None. M. Asmawi: None. H. Yusoff: None. R. Raja Ali: None.

## 12.05.

**RECURRENCE/REINFECTION RATES AFTER *H. PYLORI* ERADICATION TREATMENT DURING CHILDHOOD**S. BOUKERROU<sup>1</sup>, E. DELMOTTE<sup>2</sup>, P. BONTEMS<sup>1</sup>, J. NGUYEN<sup>1</sup>, E. ILIADIS<sup>1</sup>, A. SALAME<sup>1</sup>, A. HAMBYE<sup>2</sup>, K. KOTILEA<sup>1</sup><sup>1</sup>Hopital Universitaire de Bruxelles- Hopital Universitaire des Enfants Reine Fabiola, Brussels, Belgium,<sup>2</sup>Centre Hospitalier Universitaire Brugmann, Brussels, Belgium.

**Objective:** *Helicobacter pylori* remains a significant cause of gastrointestinal complications. It is generally accepted that recurrence rates are low, but conflicting results exist. In this context, 'recurrence' refers to both recrudescence, reappearance of the original strain due to incomplete eradication, and reinfection, new infection after successful eradication. This study aims to investigate the rate of *H. pylori* recurrence/reinfection in our pediatric population.

**Patients and Methods:** A prospective study was conducted using a 10-year database from our center. We identified children with *H. pylori* infection, confirmed by invasive methods, and successful eradication, as verified by a post-treatment <sup>13</sup>C-Urea Breath Test (UBT). The family was contacted and an additional UBT was performed in those accepting to participate. Informed consent was obtained. Data collection included results of the additional UBT and questionnaires assessing quality of life and socio-demographic factors.

**Results:** Our cohort consisted of 79 participants (40 males), median age 14 years (IQR: 12-17). Most were born in Europe (88.6%), though 97.5% had a migration background. Median time between treatment and follow-up was 37.7 months (IQR: 25.1-54.2). Recurrence/reinfection occurred in 15 individuals (19%). Statistical analysis identified younger age at treatment and gender as independent risk factors.

Children treated before age 6 had significantly higher odds of recurrence (adjOR=9.601; 95%CI: 1.413-65.220;  $p=0.021$ ), and male patients were at higher risk (adjOR=6.579; 95%CI: 1.292-33.502;  $p=0.023$ ). No significant associations were found with gastrointestinal symptoms, demographic, environmental, or socioeconomic variables.

**Conclusions:** In our cohort, we observe a recurrence/reinfection rate of 19%. We do not recommend prescribing eradication therapy to children under 6 years old unless a clear clinical indication is present. In such cases, follow-up is essential to detect and manage recurrence.

**Conflict of interest disclosure:**

S. Boukerrou: None. E. Delmotte: None. P. Bontems: None. J. Nguyen: None. E. Iliadis: None. A. Salame: None. A. Hambye: None. K. Kotilea: None.

## SESSION 13: MICROBIOME: BASIC (PARALLEL SESSION)

### 13.03.

#### COMPOSITION OF ORAL AND GASTRIC MICROBIOTA IN AUTOIMMUNE ATROPHIC GASTRITIS PATIENTS

S. CINGOLANI<sup>1</sup>, L. BELLONI<sup>1</sup>, F. FONTANA<sup>2</sup>, G. STENDARDO<sup>1</sup>, F. FABRETTI<sup>1</sup>, M. VAVALLO<sup>1</sup>, G. PIVETTA<sup>1</sup>, E. DILAGHI<sup>1</sup>, G. ESPOSITO<sup>1</sup>, B. ANNIBALE<sup>1</sup>, M. VENTURA<sup>2</sup>, C. MILANI<sup>2</sup>, E. LAHNER<sup>1</sup>

<sup>1</sup>Sapienza University of Roma, Roma, Italy, <sup>2</sup>University of Parma, Parma, Italy.

**Objective:** Autoimmune atrophic gastritis (AAG) is characterized by reduced acid secretion and dysbiosis. Increased intragastric pH may lead to survival of swallowed bacteria, possibly contributing to GC risk. Oral microbiota alterations have been linked to GC risk. This study aimed to investigate both the oral and gastric microbiota in AAGpts in order to clarify the role of oral bacteria in gastric dysbiosis.

**Patients and Methods:** Case-control study on n=20 histologically diagnosed AAGpts and n=20ctrls with healthy stomach (HS). Sputum samples were obtained fasting without tooth brushing. Within 1 hour, gastroscopy with biopsies (for histopathology and DNA extraction) was performed. Sputum (n=40) and biopsy (n=40) samples were frozen at -20°C. DNA was extracted (QIAmpDNA kit) and prepared (Illumina Nextera XT-DNA-Library-Preparation Kit). Paired-end sequencing was performed (Illumina MiSeq-sequencer, MiSeq Reagent Kit v3).

**Results:** Bacterial abundance in biopsies was higher in AAGpts than ctrs ( $p=0.06$ ), but not different in sputum ( $p=0.54$ ). On biopsies, AAGpts showed a lower Shannon Index than ctrs ( $p=0.001$ ). On sputum, AAGpts showed a higher Shannon Index than ctrs ( $p=0.0$ ). Beta-diversity (Bray-Curtis dissimilarity) was not different between pts and ctrs. In biopsies, *Streptococcus oralis*, *Fusobacterium pseudoperiodonticum*, *Veillonella rogosae*, and *Gemella sanguinis*; in sputum *G. sanguinis*, *Prevotella multisaccharivorax*, *F. nucleatum*, and *F. peridonticum* were more frequent in pts ( $p<0.03$ ). The most abundantly shared taxa between sputum and biopsy were *S. oralis* and *P. histicola*, while *G. sanguinis*, *F. pseudoperidonticum*, and *V. rogosae* were shared in pts only.

**Conclusions:** This study confirmed gastric dysbiosis in AAG. GC-related oral taxa were more commonly associated with AAG and shared between mouth and stomach. These findings show the role of oral microbiota in gastric dysbiosis, possibly contributing to increased GC risk.

**Conflict of interest disclosure:**

S. Cingolani: None. L. Belloni: None. F. Fontana: None. G. Stendardo: None. F. Fabretti: None. M. Vavallo: None. G. Pivetta: None. E. Dilaghi: None. G. Esposito: None. B. Annibale: None. M. Ventura: None. C. Milani: None. E. Lahner: None.

## 13.04.

**HARNESSING MICROBIAL-DERIVED METABOLITES FOR GASTRIC CANCER STRATIFICATION: A MULTI-OMIC MACHINE LEARNING APPROACH**

J. SOUSA<sup>1,2</sup>, I. CASTRO<sup>1,2</sup>, T. CASTRO<sup>1,2</sup>, M. MENDES-ROCHA<sup>1,2</sup>, J. PEREIRA-MARQUES<sup>1</sup>, F. CARNEIRO<sup>1,2</sup>, C. FIGUEIREDO<sup>1,2</sup>, R.M. FERREIRA<sup>1,3</sup>

<sup>1</sup>i3S, Porto, Portugal, <sup>2</sup>FMUP – Faculty of Medicine of the University of Porto, Porto, Portugal, <sup>3</sup>Ipatimup – Institute of Molecular Pathology and Immunology of the University of Porto, Porto, Portugal.

**Objective:** The gastric microbiome plays a critical role in the development of gastric cancer (GC). We hypothesize that the gastric microbiome has a unique metabolic profile that contributes to neoplastic transformation and facilitates tumor progression. Our aim is to identify potential gastric cancer biomarkers derived from microbiome metabolites.

**Materials and Methods:** A training cohort of 30 GC patients was analyzed. Untargeted metabolomics was used to profile metabolites, while metatranscriptomic analysis was performed to characterize microbial taxa and gene families. These paired datasets were used to develop a machine learning (ML) model capable of predicting microbiome-associated metabolites. RNA sequencing data from an independent test set of 343 GC cases from The Cancer Genome Atlas (TCGA) were used to infer the presence of these metabolites in GC tumors.

**Results:** The analysis identified 813 metabolites, 217 microbial taxa, and 647 gene families in the training cohort. The ML model, trained on this dataset, successfully predicted 72 microbiome-derived metabolites, with strong concordance between predicted and measured levels. When applied to the TCGA cohort, 68 microbiome metabolites were predicted in GC. The most abundant metabolites were associated with stage I-II non-MSI-high tumors. The model is currently being retrained with additional data to improve current predictions and associations in GC.

**Conclusions:** The study highlights specific microbiome-derived metabolites associated to distinct GC subtypes. These findings offer a promising avenue for developing new patient stratification strategies based on microbial metabolic signatures.

**Conflict of interest disclosure:**

R.M. Ferreira: None. J. Sousa: None. I. Castro: None. T. Castro: None. M. Mendes-Rocha: None. J. Pereira-Marques: None. F. Carneiro: None. C. Figueiredo: None.

## 13.05.

**GUT MICROBIOTA MONITORING IN ANTIBIOTIC-ASSOCIATED CLOSTRIDIODES DIFFICILE INFECTION**

G.T. KIRUBAKARAN<sup>1</sup>, T.Z. HANSEN<sup>1</sup>, P. HISENI<sup>1</sup>, K. GRAVDAL<sup>1</sup>, C. CASÉN<sup>1</sup>, K. BLOUNT<sup>2</sup>

<sup>1</sup>Genetic Analysis AS, Oslo, Norway, <sup>2</sup>Ferring Microbiome Inc, Roseville, MN, United States.

**Objective:** The Microbiome Health Index (MHI) serves as a biomarker for antibiotic-associated gut microbiome imbalances, demonstrated in recurrent *Clostridioides difficile* infected (rCDI) patients. This project aimed to develop a molecular diagnostic test leveraging the MHI biomarker, utilizing the GA-map<sup>®</sup> platform, to deliver a clinical tool for monitoring microbiome restoration in rCDI patients.

**Patients and Methods:** Fecal samples from rCDI patients pre- and post-Live Biotherapeutic (LBP) treatment (N=138) and healthy individuals (N=86) were included. Bacteria detection probes and the GA-map<sup>®</sup> platform technology (Genetic Analysis AS) were used to analyze the microbiome. The relative abundances of beneficial bacteria (Bacteroidia & Clostridia) vs. disruptive bacteria (Gammaproteobacteria & Bacilli) were utilized in the development of the GA-map<sup>®</sup> MHI molecular test.

**Results:** An MHI algorithm was developed, assessing gut health as a score from 1-6, where 1-2 indicates a critically low MHI, and 5-6 corresponds to an optimal MHI. The MHI scores were significantly lower in the baseline rCDI patients compared to the healthy subjects and increased after treatment. The AUROC value was 1.0 for the separation of baseline vs. healthy, and 0.76 for treatment responders vs. non-responders.

**Conclusions:** A molecular test was successfully developed, offering fast and reliable MHI test results. The test provides a clinically useful tool for monitoring microbiome health in rCDI patients. Further studies are planned to validate the MHI test in other disease areas.

**Conflict of interest disclosure:**

G.T. Kirubakaran: A. Employment (full or part-time); Significant; Genetic Analysis. T.Z. Hansen: A. Employment (full or part-time); Significant; Genetic Analysis. P. Hiseni: A. Employment (full or part-time); Significant; Genetic Analysis. K. Gravdal: A. Employment (full or part-time); Significant; Genetic Analysis. C. Casén: A. Employment (full or part-time); Significant; Genetic Analysis. E. Ownership Interest (stock, stock options, patent or other intellectual property); Modest; Genetic Analysis. K. Blount: A. Employment (full or part-time); Significant; Ferring Microbiome Inc.

## SESSION 14: *H. PYLORI*: BASIC (PARALLEL SESSION)

### 14.03.

#### GENOMIC SEQUENCING OF MULTIDRUG-RESISTANT *HELICOBACTER PYLORI* STRAINS FROM PATIENTS OF DIFFERENT ETHNICITIES

A. HANAFIAH<sup>1</sup>, A. SUKRI<sup>1</sup>, M. ASMAWI<sup>1</sup>, S. MOHD PUZI<sup>1</sup>, B.S. LOPES<sup>2</sup>

<sup>1</sup>The National University of Malaysia, Kuala Lumpur, Malaysia, <sup>2</sup>Teesside University, Middlesbrough, United Kingdom.

**Objective:** Antibiotic resistance mechanism in *Helicobacter pylori* isolated from multi-ethnic patients is not well understood. This study aimed to determine genomic diversity of multidrug-resistant *H. pylori* strains isolated from multi-ethnic patients in Malaysia.

**Materials and Methods:** Five *H. pylori* strains were isolated from patients (one Malay, two Chinese, and two Indians) with a history of eradication failure. Antibiotic susceptibility testing was conducted using E-test. DNA was extracted and subjected to whole genome sequencing. Sequences were assembled using *de novo* assembly. Comprehensive virulence factors and antibiotic resistance genes were conducted using bioinformatic tools.

**Results:** All strains were resistant to metronidazole, clarithromycin, and levofloxacin. All five strains had genome size of 1.6Mb and 39% of GC content. Analysis of antibiotic resistance genes reveal the presence of genes that encode resistance against tetracycline and fluoroquinolone. However, all strains demonstrated no resistance to tetracycline at phenotypic level. Comprehensive analysis of virulence factors showed the presence of complete genes that encode urease and flagella. Incomplete genes of *cag* pathogenicity island were noted. Two strains were negative to *cagA*, one strain had truncated *cagA* sequence, and two strains had EPIYA B-C motif. *vacA* analysis reveals that three strains had deletion of signal and middle sequences while another two had *s1* and *m1* sequences. All strains harbored no complete prophage sequences although remnants of phage sequences were detected. CRISPR sequences were detected in four out of five strains.

**Conclusions:** This study reveals genomic diversity in multidrug-resistant *H. pylori* isolated from multi-ethnic patients in Malaysia and may have role in emergence of antibiotic resistance.

**Conflict of interest disclosure:**

A. Hanafiah: None. A. Sukri: None. M. Asmawi: None. S. Mohd Puzi: None. B.S. Lopes: None.

## 14.04.

**HOBIT<sup>+</sup> GASTRIC TISSUE-RESIDENT MEMORY T CELLS CONFER FULL PROTECTION FROM *HELICOBACTER PYLORI* RE-INFECTION**

R. GONG, B. HUANG, M. GERHARD, R. MEJIAS-LUQUE

Technical University of Munich, München, Germany.

**Objective:** The complex inflammatory response elicited by *H. pylori* infection is characterized by the recruitment of T cells expressing markers of tissue-resident memory T ( $T_{RM}$ ) cells to the gastric mucosa. However, the function of  $T_{RM}$  cells during *H. pylori* re-infection remained unclear. Therefore, we sought to investigate the mechanisms inducing  $T_{RM}$  cells and its functionality during *H. pylori* infection and after re-infection.

**Patients and Methods:** *H. pylori*-specific  $T_{RM}$  cells were characterized by flow and Chip cytometry, immunohistochemistry and immunofluorescence, and single-cell RNA sequencing. Eradication and re-infection experiment as well as depletion of Hobit<sup>+</sup>  $T_{RM}$  cells and neutrophils helped us to explore their function.

**Results:** The induction of  $T_{RM}$  cells depends on the presence of the virulence factor CagA. *H. pylori*-specific CD4<sup>+</sup> and CD8<sup>+</sup>  $T_{RM}$  cells persisted in the stomach after eradication and conferred full protection from re-infection with the help of neutrophils. The transcription factor Hobit governs the development of  $T_{RM}$  cells. According to Hobit expression levels, CD8<sup>+</sup>  $T_{RM}$  cells clustered into different subgroups with distinct transcriptional profiles related to differential functionalities.

**Conclusions:** Gastric  $T_{RM}$  cells are bona fide correlates of protection against *H. pylori* re-infection.

**Conflict of interest disclosure:**

R. Gong: None. B. Huang: None. M. Gerhard: None. R. Mejias-Luque: None.

## 14.05.

**EMERGING RESISTANCE PATHWAYS IN *HELICOBACTER PYLORI*: A GENOMIC STUDY OF CLINICAL ISOLATES IN IRELAND**T.J. BUTLER<sup>1,2</sup>, Y. ZHAO<sup>1</sup>, S. MOLLOY<sup>1</sup>, D. MCNAMARA<sup>1,2</sup>, S. SMITH<sup>1</sup><sup>1</sup>Trinity College Dublin, Dublin, Ireland, <sup>2</sup>Tallaght University Hospital, Dublin, Ireland.

**Objective:** This study aimed to characterize resistance mechanisms in clinical *H. pylori* isolates by genomic analysis.

**Patients and Methods:** Following ethical approval and informed consent, *H. pylori* was cultured from corpus and antral biopsies of patients attending 4 hospital sites in Ireland. Antimicrobial susceptibility testing was performed by E-test (Biomerieux) and resistance classified according to the European Committee on Antimicrobial Susceptibility Testing breakpoints. DNA was isolated from cultured isolates using the DNA Mini kit (Qiagen). Whole-genome sequencing is being undertaken using Oxford Nanopore technology.

**Results:** Isolates from 138 patients [mean age 49.44 ±15.70 years; 52.90% (n=73) male] have been collected from both treatment-naïve and previously treated patients. Clarithromycin resistance was 41.30% by culture and E-test. Interestingly, some resistant strains lacked the canonical 23S rRNA point mutations (A2146G, A2146C, A2147G) typically associated with clarithromycin resistance. Preliminary genomic analysis of one-such multidrug-resistant *H. pylori* strain revealed the presence of a plasmid, a relatively uncommon feature in *H. pylori*. Instead, it harboured several novel single-nucleotide polymorphisms (SNPs) in genes potentially implicated in ribosomal structure and antibiotic efflux. Further comparative genomics across the full strain set is ongoing to identify conserved versus unique resistance mechanisms.

**Conclusions:** These initial findings suggest the existence of alternative genetic pathways contributing to clarithromycin resistance in *H. pylori*. The presence of a plasmid and novel SNPs in a multidrug-resistant strain highlights the complexity of resistance evolution. Whole-genome sequencing of our full isolate collection will provide valuable insights into the genetic landscape of resistance in Irish *H. pylori* strains, with implications for diagnostics and treatment strategies.

**Conflict of interest disclosure:**

T.J. Butler: None. Y. Zhao: None. S. Molloy: None. D. McNamara: None. S. Smith: None.

## SESSION 16: DIET AND MICROBIOTA: BETWEEN GOOD AND EVIL (PARALLEL SESSION)

### 16.03.

#### A HIGH-SALT DIET INDUCES DYNAMIC SHIFTS IN THE COMPOSITION OF THE GUT MICROBIOTA IN MICE

K. LEHR<sup>1</sup>, S. BRANDT<sup>2</sup>, A. BERNHARDT<sup>2</sup>, C. THON<sup>1</sup>, A. KRAUSE<sup>2</sup>, O. BERGER<sup>2</sup>, P. MERTENS<sup>2</sup>, A. LINK<sup>1</sup>

<sup>1</sup>Department of Gastroenterology, Hepatology and Infectious Diseases, Otto-von-Guericke University, Magdeburg, Germany, <sup>2</sup>Department for Nephrology and Hypertension, Diabetes and Endocrinology, Otto-von-Guericke University, Magdeburg, Germany.

**Objective:** The microbiota plays a crucial role in maintaining the host's health or contributing to disease, with changes in the microbiota potentially playing a key role in carcinogenesis. A high salt diet (HSD) has been linked to an increased risk of various cancers. This study aimed to investigate the impact of a prolonged HSD on the microbiota and explore the interaction between these two important factors for overall health.

**Patients and Methods:** The effects of normal (NSD) and HSD were studied in a cohort of 75 mice. Fecal samples were collected from all mice, and the 16S rRNA gene was amplified by PCR and sequenced on the Illumina platform. The animals were fed their respective diets for up to 18 months, with samples collected at 6, 12, and 18 months.

**Results:** The microbiota of mice on a HSD was significantly altered, as evidenced by a marked decrease in bacterial diversity and evenness in HSD samples. Several bacterial genera showed diet-dependent differences in abundance. For instance, *Lactobacillus* and *Muribaculum* were more abundant in NSD, while *Phocaeicola* and *Parabacteroides* showed higher abundance in HSD. These effects intensified with further prolongation of the diet and also led to distinct clustering based on diet, and multivariate analyses (PERMANOVA and ANOSIM) confirmed significant group differences (both  $p < 0.0001$ ).

**Conclusions:** This study shows that an HSD significantly affects the gut microbiota. Considering the well-established connections between microbiota alterations, chronic inflammation, and carcinogenesis, these findings underscore the potential of targeting HSD-induced microbial changes in health and disease.

#### Conflict of interest disclosure:

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### 16.04.

#### FROM GUT TO BRAIN: NEUROINFLAMMATORY EFFECTS OF OMVS FROM UREASE-PRODUCING BACTERIA

M.V.C. GRAHL<sup>1,2</sup>, K.S. HOHL<sup>2</sup>, J.C. DACOSTA<sup>1</sup>, C.R. CARLINI<sup>2,3</sup>

<sup>1</sup>Pontifical Catholic University of Rio Grande do Sul, Porto Alegre, Brazil, <sup>2</sup>Federal University of Rio Grande do Sul, Porto Alegre, Brazil, <sup>3</sup>Federal University of Health Sciences of Porto Alegre, Porto Alegre, Brazil.

**Objective:** The involvement of urease-positive bacteria such as *Helicobacter pylori* and *Proteus mirabilis* in neurodegenerative diseases remains incompletely understood. While ureases convert urea to  $\text{NH}_3$  and  $\text{CO}_2$ , they also act as virulence factors independent of their enzymatic function. We have shown that urease can trigger pro-inflammatory and neurotoxic effects, potentially contributing to diseases like Alzheimer's (AD) and Parkinson's diseases (PD). These bacteria release outer membrane vesicles (OMVs) enriched with urease and other virulence factors, capable of crossing the blood-brain barrier. This study examined the pro-inflammatory effects of OMVs derived from *H. pylori* (Hp-OMVs) and *P. mirabilis* (Pm-OMVs) on CNS cell models. Hp-OMVs were also evaluated *in vivo*.

**Materials and Methods:** OMVs were purified using the ExoBacteria OMV Isolation Kit from bacterial cultures and characterized *via* nanoparticle tracking analysis (NTA), transmission electron microscopy (TEM), protein, and urease content. (1) Cell culture experiments: BV-2 microglia, SH-SY5Y neuroblastoma cells, and primary rat astrocytes treated with OMVs (50-200 µg protein/mL, 24h) or LPS (control), assessing cytotoxicity, viability, apoptosis, reactive oxygen species (ROS), calcium influx, and pro-inflammatory cytokines. (2) Rats received daily Hp-OMV injections (ip, 7 days) and underwent behavioral testing. Brain homogenates were analyzed for inflammatory markers.

**Results:** Both OMVs induced inflammatory responses across all cell models, especially in microglia, increasing IL-1 $\beta$ , TNF- $\alpha$ , ROS,  $\beta$ -amyloid peptides, and calcium influx. Hp-OMV-treated rats exhibited memory deficits and anxiety-like behavior, with elevated brain cytokines confirming neuroinflammation.

**Conclusions:** These findings highlight the potential role of Hp-OMVs and Pm-OMVs in initiating or exacerbating neurodegenerative diseases such as AD and PD.

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#### Conflict of interest disclosure:

C.R. Carlini: None. M.V.C. Grahl: None. K.S. Hohl: None. J.C. DaCosta: None.

### 16.05.

#### TINY PARTICLES, BIG IMPACT: CHOLESTEROL NANOPARTICLES FOR *HELICOBACTER PYLORI* ERADICATION

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**Objective:** The rise of antimicrobial resistance underscores the need for innovative therapeutics that target resistant pathogens. Most cases of gastric cancer (~90%), the 5<sup>th</sup> most common and deadliest worldwide, are attributed to *Helicobacter pylori* (*Hp*) infection. However, for a pathogen responsible for chronically infecting 50% (~4 billion), the available complex antibiotic therapies are insufficient for eradication due to drug resistance and lead to gut microbiota disruption. Cholesterol, having a central role in *Hp* pathogenesis and gastric infection, is an appealing target for the development of precision therapies based on a “Trojan horse” strategy.

**Materials and Methods:** Cholesterol-grafted chitosan nanoparticles (Chol-cNP) were produced in a microfluidics system and characterized in terms of morphology (Transmission Electron Microscopy-TEM), size, concentration (Nanoparticle Tracking Analysis-NTA) and molecular composition (Infrared Spectroscopy-ATR-FTIR). The *in vitro* antimicrobial performance against *Hp* J99 strain (ATCC® 700824; highly pathogenic strain, *cagA*+ *vacA*+) was assessed by colony forming units (CFU) counting after a 24-hour incubation with the nanoparticles. Cytotoxicity was evaluated by resazurin assay, using the MKN28 (JCRB0253™) cell line in accordance with the ISO10993-5:2009.

**Results:** Chol-cNP were round shaped (TEM) and an average size of 186±2 nm, while cNP size was 147±10 nm. Cholesterol grafting onto cNP was further confirmed by ATR-FTIR. Chol-cNP were bactericidal at the highest concentration tested, 10<sup>11</sup> nanoparticles/mL, while cNP showed no bactericidal effect in the concentrations tested (10<sup>8</sup> to 10<sup>10</sup> cNP/mL). All nanoparticles were cytocompatible (cell metabolic activity >70%).

**Conclusions:** Chol-cNP is a promising strategy for the development of a novel and targeted treatment gastric infection caused by *Hp*.

#### Conflict of interest disclosure:

A. Pinho: None. P. Parreira: None. A. Müllertz: None. C. Martins: None.

## SESSION 17: *H. PYLORI*, MICROBIOTA, AND THE GUT BARRIER (PARALLEL SESSION)

### 17.03.

#### CagA+ *HELICOBACTER PYLORI* INFECTION INCREASES COLORECTAL CANCER RISK BY DISRUPTING INTESTINAL HOMEOSTASIS

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<sup>1</sup>Technical University of Munich, Munich, Germany, <sup>2</sup>Stanford University School of Medicine, Stanford, CA, United States, <sup>3</sup>Friedrich-Alexander University Erlangen-Nuremberg, Bayreuth, Germany.

**Objective:** Infection with *Helicobacter pylori* is a significant risk factor for gastric cancer and is increasingly implicated in colorectal cancer (CRC). Our previous work demonstrated that *H. pylori* promotes colorectal tumorigenesis, though the underlying mechanisms remain unclear. Given the critical role of the virulence factor cytotoxin-associated gene A (CagA) in *H. pylori* pathogenesis, we hypothesized that CagA contributes directly to intestinal tumor development.

**Patients and Methods:** To test this, we infected *Apc*-mutant and wild-type mice with either CagA-positive or CagA-deficient *H. pylori* strains. We characterized immune responses *via* flow cytometry and scRNA/TCR sequencing and examined epithelial and microbial changes. Human colorectal biopsies were analyzed for immune cell infiltration, considering CagA and eradication status. Additionally, we evaluated the impact of antibiotic eradication therapy in infected mice.

**Results:** *H. pylori* infection enhanced tumorigenesis in *Apc*-mutant mice, driven by CagA-dependent epithelial STAT3 activation, microbiota alterations, and barrier dysfunction. We identified CagA-specific CD8<sup>+</sup> T cells in the stomach but also in the small intestine and colon, suggesting a new mechanism for *H. pylori*-driven inflammation and tumorigenesis. These findings were mirrored in human samples, where CagA-positive infection correlated with increased CD8<sup>+</sup> T cell infiltration. Antibiotic eradication only partially reversed inflammation and T cell responses, suggesting a long-lasting immune imprint.

**Conclusions:** Collectively, our data highlight CagA as a key mediator of *H. pylori*-driven colorectal carcinogenesis and underscore the potential value of incorporating *H. pylori* and CagA status into CRC risk assessment and prevention strategies.

#### Conflict of interest disclosure:

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### 17.04.

#### SEX DIFFERENCES AND AUTOPHAGY INFLUENCES GASTRIC MICROBIOTA DIVERSITY AND COMPOSITION

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**Objective:** Autophagy carries dynamic roles in inflammation and tumour suppression, but also in mediating microbial homeostasis by shaping microbiota diversity, composition, and function. Anti-microbial autophagy can be directed towards *Helicobacter pylori*, the leading cause of gastric cancer (GC). Previously, we showed a germline mutation, *ATG16L1* rs2241880, leads to defective autophagy and significantly increases the risk of *H. pylori* infection and GC. We now aimed to understand the influence of rs2241880 on gastric microbiota and its potential contribution to carcinogenesis.

**Patients and Methods:** Gastric microbiota surveying (Illumina 16S V4 rRNA) was performed in a high-risk Han Chinese (10 non-cardia GC, 136 controls) population. Microbiota indices, including alpha diver-

sity, beta diversity, per taxon (MaAsLin2) were correlated with disease, patient demographics, *H. pylori* infection, and rs2241880 carriage.

**Results:** We observed opposing sex specific rs2241880 influence on microbiota diversity; in females, richness was positively associated with rs2241880 carriage ( $p_{\text{adj}}$ : 0.002). In males, we observed no effect on richness but a negative association with both evenness ( $p_{\text{adj}}$ : 0.02) and Shannon's index ( $p_{\text{adj}}$ : 0.02). rs2241880 carriage also significantly influenced composition (pseudo-F: 1.59,  $p_{\text{adj}}$ : 0.02) in females. rs2241880 was associated with enrichment of *Hoylella* (previously *Prevotella*, likely *sp. shahii*,  $p_{\text{adj}}$ : 0.04) in females, while in males, rs2241880 was associated with enrichment of *Capnocytophaga* (likely *sp. leadbetteri*,  $p_{\text{adj}}$ : 0.04).

**Conclusions:** Gastric microbiota surveying revealed sex-specific rs2241880 phenotypes influencing diversity and composition in a high-risk GC population, as well as the enrichment of oral pathobionts which may harbour carcinogenic potential in the gastric microenvironment. This research highlights the importance of sex-stratification in analyzing host-microbial interactions.

**Conflict of interest disclosure:**

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## 17.05.

### LONG-TERM IMMUNOLOGICAL CHANGES DETERMINED BY QUADRUPLE THERAPY REGIMENS IN PATIENTS WITH *HELICOBACTER PYLORI* INFECTION IN A SOUTH-EUROPEAN COUNTRY

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**Objective:** The aim of the study was to evaluate if quadruple therapies determine major changes in the immunological profile of patients submitted to *H. pylori* eradication.

**Patients and Methods:** All patients were submitted to eradication treatment with five quadruple therapies with Esomeprazole (A: 14-day Concomitant with metronidazole 500 mg tid; B: 14-day Concomitant with metronidazole 500 mg bid; C: 10-day Quadruple with bismuth; D: 14-day Sequential; E: 14-day Hybrid) in a blind, randomized trial. Efficacy and safety rates after 2 and 12 months of treatment were evaluated. Analysis of immunological changes included cell populations study by flow cytometry (CD4+, CD8+, B-cell, T-cell, natural killer cells and CD4+/CD8+-cells ratio).

**Results:** One-hundred-twenty-six patients (42.9% males; mean age: 57.4±16.7 years) completed the protocol. Overall efficacy and adverse events rates were 98.4% and 47.6%, respectively. After treatment, 36 patients (28.6%) developed other infectious diseases (mean time:9.5±5.7 months), being severe (need for hospitalization) in 3 patients (8.3%). Comparing the post-treatment infection/non-infection groups, there was a significant decrease in the B-cell count [ $Z(2.52)=3.5$ ;  $p=0.037$ ]. Regarding severe infections, there was a decrease in the CD4+/CD8+-cells ratio, CD4+ and B-cell counts [ $Z(2.52)=59.9$ ,  $p<0.001$ ;  $Z(2.52)=5.9$ ,  $p=0.005$  and  $Z(2.52)=12.0$ ,  $p<0.001$ , respectively) and an increase in the CD8+ count [ $Z(2.52)=5.6$ ,  $p=0.006$ ]. Considering the different regimens used, a significant decrease in the CD4+/CD8+-cells ratio was verified for regimen C compared to other non-bismuth quadruple therapies [ $Z(1.4,35.2)=5.2$ ,  $p=0.019$ ].

**Conclusions:** Quadruple therapies are highly effective in eradicating *H. pylori* gastric infection. However, these therapies are associated with adverse events, with infections occurring in ~1/4 of patients. There is a significant decrease in the CD4+/CD8+-cells ratio and B-cell count for all treatments, most significantly in the CD4+/CD8+-cells ratio for bismuth-containing regimen.

**Conflict of interest disclosure:**

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# ROUND

## 1. HELICOBACTER - ROUND 01

### P01.001.

#### ANTI-PARIETAL CELL ANTIBODY LEVELS AND GASTRIC ATROPHY IN A SOUTH AND SOUTHEAST ASIAN GENERAL POPULATION

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**Objective:** Parietal cell antibody (PCA) is an autoantibody that damages gastric parietal cells and autoimmune gastritis (AIG) is a chronic gastric inflammatory disease related to PCA and severe predominant corpus atrophy. Although a positive PCA result is a key clinical diagnostic tool for AIG, its rates vary widely among ethnic groups, and its exact relationship with AIG and predominant corpus atrophy remains unclear. The aim of the study is to investigate the association between gastritis severity and PCA levels in South and Southeast Asia.

**Patients and Methods:** Associations between endoscopic and histopathologic atrophy, PCA positivity rates, *H. pylori* status, and pepsinogen levels were investigated in 1,982 symptomatic patients from Vietnam, Thailand, Myanmar, Bangladesh, and Nepal.

**Results:** Overall, 38.5% of participants were negative for *H. pylori* infection, while 57.6% had a current infection. A positive PCA result, defined as a titer >10, was present in 44.0% of participants (95% confidence interval: 41.8%-46.3%, 873/1,982). Pathological atrophy, corpus atrophy, and predominate corpus atrophy were found in 8.7% (169/1,982), 5.1% (101/1,982), and 4.1% (81/1,982) of participants, respectively. Positive PCA rates significantly differed among countries (10.6%-63.8%,  $p < 0.001$ ). No significant correlation was found between PCA results and the presence or severity of atrophy.

**Conclusions:** Although PCA positivity was high among abdominal symptomatic patients from South and Southeast Asian countries, few had severe predominant corpus atrophy or positive pepsinogen tests, which suggests a low rate of AIG in this population. Long-term surveillance of PCA-positive individuals is necessary to determine the clinical significance of a positive PCA result without AIG.

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### P01.002.

#### KOREAN REGISTRY ON THE CURRENT MANAGEMENT OF *HELICOBACTER PYLORI* (K-HP-REG): INTERIM ANALYSIS OF ADHERENCE TO THE REVISED EVIDENCE-BASED GUIDELINES FOR FIRST-LINE TREATMENT

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**Objective:** The Korean guidelines for *Helicobacter pylori* treatment were revised in 2020; however, the extent of adherence to these guidelines in clinical practice remains unclear. Herein, we initiated a prospective, nationwide, multicenter registry study in 2021 to evaluate the current management of *H. pylori* infection in Korea.

**Patients and Methods:** This interim report describes the adherence to the revised guidelines and their impact on first-line eradication rates. Data on patient demographics, diagnoses, treatments, and eradication outcomes were collected using a web-based electronic case report form.

**Results:** A total of 7,261 patients from 66 hospitals who underwent first-line treatment were analyzed. The modified intention-to-treat eradication rate for first-line treatment was 81.0%, with 80.4% of the prescriptions adhering to the revised guidelines. The most commonly prescribed regimen was the 14-day clarithromycin-based triple therapy (CTT) (42.0%), followed by tailored therapy (TT) (21.2%), 7-day CTT (14.1%), and 10-day concomitant therapy (CT) (10.1%). Time-trend analysis demonstrated significant increases in guideline adherence and the use of 10-day CT and TT, along with a decrease in the use of 7-day CTT (all  $p < 0.001$ ). Multivariate logistic regression analysis revealed that guideline adherence was significantly associated with first-line eradication success (odds ratio, 2.03; 95% confidence interval, 1.61-2.56;  $p < 0.001$ ).

**Conclusions:** The revised treatment guidelines for *H. pylori* infection have been increasingly adopted in routine clinical practice in Korea, which may have contributed to improved first-line eradication rates. Notably, the 14-day CTT, 10-day CT, and TT are emerging as the preferred first-line treatment options among Korean physicians.

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**P01.003.**

**TO FAIL OR NOT TO FAIL – AN UPDATE FROM THE UK ON THE TREATMENT OUTCOMES OF 462 PATIENTS FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)**

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**Objective:** UK guidance on *H. pylori* management is not aligned with guidance in the rest of Europe. The aim of this study is to analyse the current UK practice to highlight areas that warrant improvement.

**Materials and Methods:** UK data collected at AEG-REDCap e-CRF until January 2025 from the European Registry on *H. pylori* management (Hp-EuReg) were analysed. Modified intention-to-treat (mITT) and per protocol (PP) analyses were performed and Fisher's exact test was used for comparison of categorical data (significance for  $p < 0.05$ ).

**Results:** The mean age of 462 patients was 55 years (SD 16.2 years). Most commonly prescribed regimens were Amoxicillin-Clarithromycin-PPI (75.5%), Amoxicillin-Metronidazole-PPI (11.1%) and Clarithromycin-Metronidazole-PPI (9.1%). PPI was prescribed at low, standard and high dose in 76%, 21% and 3%, respectively. Tests to confirm eradication success were done in 85% of patients, with practice varying between different sites ( $p < 0.001$ ). Eradication was successful in 71% in both mITT and PP analyses. Treatment was prescribed for 7 days in 90.9% of patients and for 14 days in 7.4%. Patients treated for 7 days showed treatment success in 70% and 69% in the mITT and PP analyses, respectively, compared to 93% (mITT, PP) in those treated for 14 days (mITT:  $p = 0.005$ ; PP:  $p = 0.010$ ). Second-line treatment was documented for 109 patients with 20 different regimens having been prescribed. The overall mITT success of second-line treatment was only 48.5%.

**Conclusions:** Clarithromycin-triple therapy remains the standard in the UK, despite a treatment failure of  $\approx 30\%$ . A review of the national guidance on this topic is needed.

**Conflict of interest disclosure:**

J. Bornschein: F. Consultant/Advisory Board; Modest; Flynn Pharma Ltd UK, Juvisé. I. Beales: None. M. Cavlina Sevo: None. O.P. Nyssen: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Allergan, Mayoly Spindler, Richen, Biocodex, Juvisé. A. Cano-Català: None. A. Cano-Català: None. P. Parra: None. L. Moreira: None. F. Mégraud: None. C. O'Morain: None. J.P. Gisbert: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Allergan/Abbvie, Diasorin, Richen, Biocodex. F. Consultant/Advisory Board; Modest; Juvisé, Mayoly Spindler. P. Phull: None.

**P01.004.**

**COMPARATIVE ANALYSIS OF 7-DAY FEXUPRAZAN-BASED AND 14-DAY RABEPRAZOLE-BASED TRIPLE THERAPIES FOR *HELICOBACTER PYLORI* ERADICATION**

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**Objective:** There have been no data on the eradication of *Helicobacter pylori* by fexuprazan, a potassium-competitive acid blocker. This study aimed to evaluate the efficacy and safety of the 7-day fexuprazan-based triple therapy regimen compared to the 14-day rabeprazole-based triple therapy regimen for treating *H. pylori* infection in Korean patients.

**Patients and Methods:** A randomized controlled single-center study was performed to evaluate whether the 7-day regimen of fexuprazan (40 mg)-based triple therapy (with 1 g of amoxicillin, 500 mg of clarithromycin administered twice daily) was non-inferior to the 14-day regimen of rabeprazole (20 mg)-based triple therapy for *H. pylori* eradication. The primary endpoint was the eradication success rate, determined by the results of a urea breath test.

**Results:** A total of 79 patients were randomly allocated to the fexuprazan or rabeprazole group. The eradication rates were 80.00% (32/40) and 82.05% (32/39) in the full analysis set, and 83.78% (31/37) and 88.89% (32/36) in the per protocol set, respectively, and there were no statistically significant differences between the two groups ( $p = 1.0000$  and  $p = 0.7366$ ). The overall incidence of treatment-related adverse events did not differ significantly between the two groups ( $p = 0.8066$ ), and both regimens were well tolerated.

**Conclusions:** The 7-day fexuprazan-based triple therapy regimen demonstrated comparable efficacy to the 14-day rabeprazole-based regimen in patients with *H. pylori* infection. Additionally, the fexuprazan-based regimen was as safe as rabeprazole-based regimen, with a similar incidence of adverse events.

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## P01.005.

### EMPIRICAL ERADICATION THERAPY FOR *HELICOBACTER PYLORI* INFECTION IN SECOND AND SUBSEQUENT TREATMENT LINES: EXPERIENCE FROM 500 CASES OF THE BRAZILIAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-BRAZILREG)

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**Objective:** The aim of the study was to evaluate the effectiveness of empirical therapy in the second-line and rescue therapy in Brazil.

**Patients and Methods:** A prospective registry of the Brazilian gastroenterologists on *H. pylori* management (Hp-BrazilReg, Hp-WorldReg's partner) registered infected adult patients from March 2022 to October 2024. Modified intention-to-treat (mITT) analyses were performed.

**Results:** We evaluated 572 patients (mean age 52 years; 64% women). 386 (67%) patients received a second-line and 186 (33%) received rescue therapy (third-line and subsequent). Low-, standard-, high-dose proton pump inhibitors (PPIs) and vonoprazan (VPZ) were used in 40%, 10%, 24%, and 26% of cases, respectively. With second-line, the overall eradication rate was 74%. The most frequently used regimen was PPI+amoxicillin+levofloxacin for 10-14 days, with 55% eradication for 10 days and 84% for

14 days. Adding bismuth to this same 14-day regimen increased the effectiveness to 100% ( $p=0.016$ ). In third-line, the main scheme was PPI-bismuth-tetracycline-metronidazole (PPI-BTM), used in 24%, with 87% mITT cure. Within fourth-line, dual therapy VPZ-amoxicillin (VA) was the most commonly prescribed (33%), followed by PPI+bismuth+amoxicillin+rifabutin (14%), both showing 100% effectiveness. The therapy VA was the most used in the fifth-line treatment or more, encompassing 43% of the cases with 100% effectiveness. Overall, 23% presented mild adverse events, being nausea the most frequent (14%) and compliance was 99%.

**Conclusions:** In Brazil, the overall effectiveness of second-line therapy showed a suboptimal ( $\leq 90\%$ ) cure rate; however, the combination of PPI-bismuth-amoxicillin-levofloxacin prescribed for 14 days reported successful effectiveness. In the third-line, PPI-BTM provided encouraging results (87%). Alternatively, therapy with VA and rifabutin-based therapy showed promising results in rescue treatment.

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**P01.006.**

**INVESTIGATION OF THE ASSOCIATION BETWEEN GASTRIC INTESTINAL METAPLASIA AND MAP-LIKE REDNESS IN THE MUCOSA AFTER *HELICOBACTER PYLORI* ERADICATION THERAPY**

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**Objective:** Map-like redness is an endoscopic risk factor for gastric cancer in patients who have undergone *Helicobacter pylori* eradication therapy. Histologically, it is characterized as intestinal metaplasia. However, the factors contributing to the occurrence of map-like redness after eradication remain poorly understood. This study aimed to identify endoscopic mucosal findings predictive of the development of map-like redness by comparing mucosal findings before and after *Helicobacter pylori* eradication therapy.

**Patients and Methods:** A multicenter, prospective observational study in Japan was conducted to investigate the characteristics of patients who developed map-like redness after eradication therapy and the relationship between the endoscopic severity of gastritis and the development of map-like redness in patients who underwent endoscopy before eradication, and one year after eradication.

**Results:** The incidence of map-like redness was observed in 28 out of 93 patients (30.1%). All patients with map-like redness exhibited intestinal metaplasia at the same sites during endoscopy before eradication therapy. In patients with map-like redness, intestinal metaplasia was confirmed at the same locations before eradication. These patients were older and had significantly higher total scores on the Kyoto classification of gastritis compared to those without map-like redness. Multivariate analysis revealed that map-like redness was associated with intestinal metaplasia after eradication (odds ratio: 8.144, 95% CI: 2.811-23.592).

**Conclusions:** In all cases of map-like redness, the same sites were identified as intestinal metaplasia during pre-eradication observation. Patients with higher degrees of intestinal metaplasia had a higher frequency of map-like redness. Those with severe intestinal metaplasia represent a high-risk group for gastric cancer and require greater attention and monitoring.

**Conflict of interest disclosure:**

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## P01.007.

**VONOPRAZAN IS HIGHLY EFFECTIVE AND SAFE AS AN ADJUVANT IN DIFFERENT REGIMES IN FIRST- AND RESCUE-LINE THERAPIES FOR *H. PYLORI* INFECTION IN BRAZIL**

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**Objective:** The aim of the study was to evaluate the effectiveness of vonoprazan (VPZ) as adjuvant in eradication therapy for *H. pylori* (ETHP) in Brazil.

**Patients and Methods:** We performed a real-life registry, assessing outcomes of EHP by Brazilian gastroenterologists (Hp-BrazilReg, WorldHpReg's partner), and data were registered at AEG-REDCap from March 2022-October 2024. Effectiveness was evaluated by modified intention-to-treat (mITT).

**Results:** 2,132 Brazilian patients, mean age 52 years, 61% women, were included. First-line treatments were administered to 73% (n=1,560) of cases, second-line to 18% (n=386), and rescue to 9% (n=186), with 94% of patients receiving 14-day prescriptions. Low-, standard-, and high-dose of proton pump inhibitors (PPIs), as well as 20mg BID of vonoprazan (VPZ) were used in 39%, 38%, 23%, and 15% of treatments, respectively. Compliance (>90% drug intake) was reported in 99% of the patients. At least

one adverse event was reported by 25% of patients, mainly nausea (13%). The regimens reaching  $\geq 90\%$  eradication were: dual-VPZ+amoxicillin for first-line and rescue treatments (96% and 100%, respectively), VPZ+bismuth+tetracycline+metronidazole for second- and third-line treatments (92% and 90%, respectively), and PPI+bismuth+levofloxacin+amoxicillin (100%) for second-line treatment. Prescribing VPZ (vs. PPI) was an independent factor associated with higher effectiveness both in first-line (OR 2.95; IC 95%: 1.71-5.09) and in second-line and rescue treatments (OR 2.87; IC 95%: 1.69-5.13), with no difference in adverse effects ( $p < 0.01$ ).

**Conclusions:** VPZ, when prescribed as an adjuvant for treating *H. pylori* infection, shows highly effective results as part of dual therapy with amoxicillin for first-line and rescue treatments, as well as in quadruple therapy with bismuth+metronidazole+tetracycline or bismuth+amoxicillin and rifabutin for rescue treatments.

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**P01.008.**

**SECOND- AND THIRD-LINE THERAPIES FOR *HELICOBACTER PYLORI* ERADICATION IN SLOVENIA: DATA FROM 2013-2024 OF THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT**

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**Objectives:** The treatment for *Helicobacter pylori* (*H. pylori*) infection is clinically indicated, however, the optimal strategies for *H. pylori* second- and third-line management remain unclear.

**Patients and Methods:** Data on patient's second- and third-line eradication therapies registered in the European Registry on *H. pylori* Management (Hp-EuReg) between 2013 and 2024 were included. Effectiveness was assessed using a modified intention-to-treat (mITT) analysis, usually with UBT.

**Results:** Data from eight Slovenian medical institutions contributed to the Hp-EuReg database, encompassing 402 second-line and 81 third-line eradication regimens. Among second line regimens with more than 15 patients, the following achieved an eradication rate of at least 90%: a 14-day regimen of esomeprazole, amoxicillin, levofloxacin, and bismuth (96%); a 10-day and 14-day regimen with esomeprazole, amoxicillin, and levofloxacin (91% and 90%, respectively); and a 10-day regimen with esomeprazole combined with bismuth quadruple therapy in a single-capsule (100%). The overall eradication rates for second-line empirical treatments and culture-guided treatments were 86% and 89%, respectively ( $p >$

0.05). Side effects were reported by 52 patients (13%), and treatment was discontinued in 0.7% of cases due to adverse events. In third-line treatment, bismuth single-capsule combination therapy was the only regimen that achieved an optimal cure rate (94%). The eradication rate for empirical treatment was 84%, while that for culture-guided treatment was 85% ( $p > 0.05$ ). Side effects were reported in 12 patients (15%); however, no patient required treatment discontinuation due to adverse events.

**Conclusions:** In Slovenia, *H. pylori* eradication second- and third-line rescue therapies are generally effective and safe in clinical practice.

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**P01.009.**

**A RANDOMIZED, DOUBLE-BLIND, ACTIVE-CONTROLLED, MULTICENTER STUDY TO EVALUATE THE SAFETY AND EFFICACY OF TEGOPRAZAN-BASED STANDARD TRIPLE THERAPY FOR *HELICOBACTER PYLORI* ERADICATION**

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**Objective:** Potassium-competitive acid blockers (P-CABs) offer prolonged acid suppression and are promising agents for *Helicobacter pylori* eradication. We aimed to assess the efficacy and safety of tegoprazan-based standard triple therapy (STT).

**Patients and Methods:** This multicenter randomized controlled study enrolled treatment-naïve adults with *H. pylori* infection in 18 institutions from February 2023 to April 2024. Participants were randomized 1:1:1 to receive tegoprazan 50 mg (TAC1), tegoprazan 100 mg (TAC2), or lansoprazole 30 mg (LAC) with amoxicillin 1000 mg and clarithromycin 500 mg twice daily for 14 days. The primary endpoint was the eradication rate, analyzed in the full analysis set (FAS) and per-protocol set (PPS). Non-inferiority was established if the lower bound of the 95% confidence interval (CI) for the difference in eradication rates was greater than -10%.

**Results:** Of the 382 randomized patients, 364 completed the study. In the FAS, eradication rates were 85.95% for TAC1, 85.48% for TAC2, and 78.74% for LAC. Both TAC1 ( $p = 0.0002$  vs. LAC) and TAC2 ( $p = 0.0003$  vs. LAC) demonstrated non-inferiority. In the PPS, eradication rates were 88.50% for TAC1, 87.39% for TAC2, and 81.30% for LAC, with TAC1 ( $p < 0.0001$  vs. LAC) and TAC2 ( $p = 0.0003$  vs. LAC) maintaining non-inferiority. No significant differences in adverse event rates were observed across groups, and no serious adverse events occurred.

**Conclusions:** Tegoprazan-based STT demonstrated non-inferiority to lansoprazole-based STT, achieving eradication rates above 80% in the FAS. Given its efficacy and safety profile, tegoprazan-based triple therapy may serve as an effective first-line treatment option for *H. pylori* eradication.

**Conflict of interest disclosure:**

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**P01.011.**

**EUROHELICAN: ACCELERATING GASTRIC CANCER REDUCTION THROUGH  
HELICOBACTER PYLORI ERADICATION – FIRST SCREEN AND TREAT APPLICATION STUDY IN EUROPE**

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**Objectives:** *Helicobacter pylori* is class I carcinogen responsible for 89% of non-cardia gastric cancer.

**Patients and Methods:** For the first time in Europe, a screen-and-treat application study was conducted by the National Institute for Public Health and the Community Health Center Maribor. 5,500 asymptomatic individuals 30-34 years of age were invited to participate (randomized sample). Additional 769 participants were included (non-randomized group). Locally validated *H. pylori* IgG serology and UBT as a confirmatory test were used. Quadruple bismuth based 14-day eradication therapy was the first line therapy.

**Results:** Response rate was 24%; in men 21.7% and 29.7% in women ( $p<0.001$ ). There were in total of 2,105 persons who conducted a partial interview with the registered nurse. The seropositivity rate was 14.2% in combined sample. Higher seropositivity rates was found in immigrants (36%,  $p>0.001$ ). The dropout rate of -22.8% was recorded for participants with a positive serology who should continue with UBT. Second highest dropout rate of -19.9% was recorded for participants with a positive UBT result who were referred to treatment (12 pregnant women not included). Patients' adherence towards treatment was 90.6%. The rate of reported adverse events was 35.9%, more in men than in women (76.5% vs. 54.5%,  $p=0.014$ ). The eradication rate in 92 patients was 95.7%.

**Conclusions:** The combined use of primary serology testing and confirmatory UBT showed no evident shortcomings. The use of quadruple bismuth-based treatment scheme showed encouraging eradication and adherence rates.

**Conflict of interest disclosure:**

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## 1. HELICOBACTER - ROUND 02

### P01.025.

#### THE SIGNIFICANCE OF *HELICOBACTER PYLORI* GASTRITIS FOUND DURING UPPER ENDOSCOPY PERFORMED FOR THE DIAGNOSIS OF CELIAC DISEASE IN PEDIATRIC PATIENTS

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**Objective:** The significance of *Helicobacter pylori* (HP) gastritis found incidentally during upper gastrointestinal endoscopy (UGE) for suspected celiac disease (CeD) in children remains unclear. We aimed to compare between pediatric CeD patients diagnosed with and without HP.

**Patients and Methods:** The study retrospectively included pediatric CeD patients diagnosed by UGE between 12.2018-12.2024. Baseline data included demographics, presenting symptoms, family history of CeD and laboratory data. UGE findings in the stomach included endoscopic appearance, histopathology and HP positivity. We documented whether HP eradication treatment was administered.

**Results:** Of 436 children with CeD, 274 (62.8%) were females, mean age  $8.1 \pm 4.4$  years. HP was positive in 118 (27.1%). Presenting symptoms included gastrointestinal (GI) symptoms 211 (48.4%), growth delay 60 (13.8%) and iron deficiency anemia (IDA) in 42 (9.6%). Of 109 (25%) asymptomatic children, 46 (42.2%) had a family history of CeD. HP positive children had fewer GI symptoms (37.3% vs. 52.5%  $p=0.008$ ); however, the prevalence of IDA was similar between positive and negative patients. Nodular gastritis and erosions were significantly more prevalent in the HP positive patients, 69 (58.5%) vs. 10 (3.1%) and 7 (5.9 %) vs. 2 (0.6%), respectively ( $p<0.001$ ). There were no significant differences in celiac serology, hemoglobin or ferritin levels. HP eradication treatment was administered to only 11 (2.5%) children.

**Conclusions:** HP gastritis is common in pediatric patients undergoing UGE for suspected CeD but does not influence symptoms or the prevalence of IDA. These findings question the necessity of routine HP testing and eradication in concordance with the updated pediatric guidelines.

#### Conflict of interest disclosure:

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### P01.026.

#### ESTABLISHING EPIDEMIOLOGIC CUT-OFF VALUES FOR *HELICOBACTER PYLORI* IN KOREA: A MODEL-BASED ANALYSIS OF ANTIBIOTIC RESISTANCE PATTERNS

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**Objectives:** The absence of standardized clinical minimum inhibitory concentration (MIC) breakpoints for *Helicobacter pylori* has resulted in inconsistent resistance definitions, even within the same research group in Korea. Therefore, establishing epidemiological cut-off values (ECOFFs) is essential for standardization.

**Patients and Methods:** MIC distributions for antibiotics commonly used against *H. pylori* in South Korea were analyzed from 2015 to 2023. A total of 5,925 primary *H. pylori* isolates were collected from five data sources, and MIC values were determined using the serial two-fold agar dilution method. The ECOFFinder program was used to establish ECOFFs for six antibiotics.

**Results:** The tentative ECOFFs for amoxicillin and clarithromycin were 0.125 µg/mL. The ECOFFs for levofloxacin, metronidazole, and tetracycline were 0.5, 8.0, and 0.25 µg/mL, respectively. Although a definitive ECOFF could not be determined for rifabutin, a tentative value of 0.25 µg/mL was established. Based on these ECOFFs, the resistance rates were 17.9% for amoxicillin, 31.9% for clarithromycin, 40.9% for levofloxacin, 24.7% for metronidazole, and 11.5% for tetracycline. Rifabutin, with its tentative ECOFF, showed a resistance rate of 0.3%.

**Conclusions:** This comprehensive analysis defines regional antibiotic resistance patterns and establishes Korea-specific ECOFFs, providing a foundation for determining clinical breakpoints and optimizing *H. pylori* eradication strategies.

**Conflict of interest disclosure:**

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**P01.027.**

**OUTCOME OF HELICOBACTER PYLORI THIRD-LINE ERADICATION THERAPY AND CONSIDERATION OF UNSUCCESSFUL CASES**

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**Objective:** Autoimmune gastritis (AIG) has been reported in patients with multiple *Helicobacter pylori* eradication failures. The “Endless eradication”, in which patients are repeatedly eradicated without realizing that they have a false-positive UBT, may be a trigger for detection. Therefore, we retrospectively examined third-line eradication outcomes and the association between atrophy type and eradication rate.

**Patients and Methods:** The study included patients treated for third-line eradication therapy from January 2015 to December 2023. Eradication rates were analyzed by intention to treat (ITT) and per-protocol (PP) analysis. The eradication rate by endoscopic atrophy was examined. We examined endoscopic features suspicious for AIG in eradication failures.

**Results:** A total of patients 91 (37 males, 54 females, mean age 54.1 years) were treated. Eradication was successful in 74 cases, unsuccessful in 15 cases, and 2 cases were not judged (not visits). ITT analysis was 81.3% (74/91) and PP analysis was 83.1% (74/89). Among 63 cases evaluated for atrophy, 35 (55.6%) were Closed type and 28 (44.4%) were Open type. Eradication rate was 91.4% (32/35) for Closed type and 71.4% (20/28) for Open type ( $p = 0.04$ ). Of the 11 failed cases, 2 showed sticky adherent dense mucus and corpus-predominant atrophy. The UBT values were 6.3‰ and 9.9‰.

**Conclusions:** ITT analysis was 81.3% and PP analysis was 83.1%. The eradication rate was higher in Closed type than in Open type. Some mildly positive UBT cases may have been false positives, and third-line eradication failures may have included endless eradication.

**Conflict of interest disclosure:**

K. Ueda: None. M. Hojo: None. A. Nagahara: None.

**P01.028.**

**LOCAL CYTOPROTECTION WITH ALPHA-GLUTAMYL-TRYPTOPHAN IN THE TREATMENT OF CHRONIC ATROPHIC GASTRITIS, ASSOCIATED WITH *HELICOBACTER PYLORI*: RESULTS OF HISTOLOGICAL AND IMMUNOHISTOCHEMICAL EXAMINATION**

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**Objective:** The aim of the study was to investigate the efficacy of alpha-glutamyl-tryptophan on the morphological parameters of the gastric mucosa (GM) and the expression of CXCL-12 and CDX-2 in chronic atrophic gastritis associated with *Helicobacter pylori*.

**Patients and Methods:** Biopsy samples from the atrophic area of the GM of 116 patients with chronic atrophic gastritis associated with *H. pylori* were analyzed (58 patients taking alpha-glutamyl-tryptophan and 58 placebo) before and after treatment. Morphological examination included estimation of the atrophy (the number of glands per 1 mm<sup>2</sup> of GM, the depth of the glands of the GM, intestinal metaplasia), the inflammation (the number of cells per 1 mm<sup>2</sup> of the GM: neutrophils, eosinophils, macrophages, lymphocytes, plasmocytes). Immunohistochemical examination included the expression of CXCL-12 and CDX2.

**Results:** In alpha-glutamyl-tryptophan group we revealed a statistically significant changes: increase in the number of glands per 1 mm<sup>2</sup> of the GM when compared with the baseline by 26.1% ( $p=0.028$ ) and with the placebo ( $p=0.026$ ), decrease the number of eosinophils in 3 times, neutrophils in 4 times, macrophages in 1.5 times, lymphocytes in by 28.2%, plasmocytes in by 29.6%, increase in the relative area (%) of the CDX-2 factor in comparison with the baseline ( $p=0.015$ ).

**Conclusions:** A positive effect of the alpha-glutamyl-tryptophan on regenerative mechanisms leading to stabilization and/or improvement of the histological picture in the atrophic area of the GM was found in comparison with the baseline and with placebo. The results of an immunohistochemical study to increase CDX-2 expression can also be regarded as an indicator of improvement in reparative processes.

**Conflict of interest disclosure:**

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**P01.029.**

**DEVELOPMENT OF A GYRASE A GENE-BASED, UNIVERSAL QPCR ASSAY FOR *H. PYLORI* STRAINS**

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**Objective:** Approximately 50% of the world population is infected by the gastric pathogen *H. pylori* (Hp). A qPCR assay with specificity and sensitivity is important in quantifying Hp abundance in gastric samples. However, the development of a universal qPCR for all known Hp strains is hindered by extensive genomic variability among Hp strains and significant genomic sequence similarity between Hp and other non-Hp helicobacters present in humans.

**Materials and Methods:** Hp gyrase A gene (*gyrA*) is a house-keeping gene whose nucleotide sequence is both highly conserved among globally collected Hp strains and divergent from non-Hp orthologs. By using bioinformatic analyses of bacterial *gyrA* sequences in gene databases and degenerate nucleotide design, primers and probe were generated. Specificity, sensitivity and universality of the primers and probe against 30 Hp strains and non-Hp helicobacters was tested in qPCR assays. This assay was also used to determine Hp status in 48 gastric tissues from the Colombia patients.

**Results:** As low as 10 copies of the Hp genome were detected with the newly developed qPCR, whereas this assay did not detect 10<sup>7</sup> copies of the non-Hp helicobacter genomes from gastric *H. suis* and *H. felis*, and enterohepatic *H. bilis*, *H. cinaedi* and *H. pullorum*. In addition, Hp positivity is 37.5% via qPCR compared to 33.3% via the Steiner stain in the gastric tissues.

**Conclusions:** We have developed the *gyrA*-based fluorogenic Hp qPCR assay with sensitivity, specificity and universality, which can be used to survey Hp status in environmental and clinical samples.

**Conflict of interest disclosure:**

Z. Ge: None. Z. Shen: None. A. Mannion: None. J.G. Fox: None.

**P01.030.**

**UNTARGETED METABOLOMIC PROFILING AS A NEW TOOL TO IDENTIFY SYSTEMIC SIGNATURES OF *HELICOBACTER PYLORI* INFECTION IN A GUINEA PIG MODEL**

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**Objective:** Infections due to Gram-negative bacteria *Helicobacter pylori* may result in humans with gastritis, gastric or duodenal ulcers, and even gastric cancer. Investigation of quantitative changes of soluble biomarkers, connected with *H. pylori* infection, is a promising tool for monitoring the course of infection and inflammatory response. The aim of this study was to determine, using an experimental model of *H. pylori* infection in guinea pig, the specific metabolomic biomarkers of sera from *H. pylori* infected (32) vs. uninfected (32) animals. The *H. pylori* status was confirmed by histological, molecular, and serological examination.

**Materials and Methods:** UPLC-QTOF/MS methods were used for metabolomic profiling. The metabolomic biomarkers significantly connected with *H. pylori* infection were selected based on volcano plots and classical univariate receiver operating characteristic (ROC).

**Results:** In this study, 13 unique metabolites significantly differentiating *H. pylori*-infected guinea pigs from uninfected animals were selected.

**Conclusions:** The metabolomic profiling of serum samples in conjunction with ROC characteristics of data facilitates monitoring *H. pylori* infection and related inflammatory responses in guinea pigs experimentally infected with these bacteria. It may be considered for application in humans.

**Fundings**

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P01.031.

**CHILDREN CHARACTERISTICS AND TREATMENT ERADICATION RATE OF *HELICOBACTER PYLORI* (*H. PYLORI*) INFECTION: RESULTS FROM THE FRENCH SPEAKING GROUPE OF PEDIATRIC GASTRO-HEPATOLOGY AND NUTRITION ON *H. PYLORI* REGISTRY (GFHGNP-*H. PYLORI* REGISTRY)**

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**Objective:** The GFHGNP-*H. pylori* registry conducted a multicenter prospective non-interventional registry for clinical, endoscopic and histologic data as well as *H. pylori* antimicrobial susceptibility testing (AST) profiles with their eradication success rate in children by comparing those from France (F), (Low prevalence *H. pylori* area) vs. Vietnam (V), (High prevalence *H. pylori* area).

**Patients and Methods:** From 2018 to 2021, 17 centers from F and one center from V prospectively reported their *H. pylori* diagnostic, treatment and eradication rate data. Patients were stratified into 2 groups: anti-*H. pylori* treatment naïve (Group A) and after treatment failure (Group B). 1,199 children were enrolled, 208 [192 (92%) A & 16 (8%) B] in F and 991 [832 (84%) A & 159 (16%) B] in V.

**Results:** Vietnamese children were significantly younger than French ones,  $p < 0.05$ . Duodenal ulcers and erosions were significantly higher in V (F 8.3, V 17.6%,  $p < 0.05$ ). All *H. pylori* children in F and V showed antral and corpus chronic active inflammation, Vietnamese children had significantly higher antral and corpus chronic active inflammation than French ones,  $p < 0.05$ . Full susceptibility strains were found in 55.6 F & 0 V%,  $p < 0.0001$  (A: 58.3 F & 0 V%, B: 22.2 F & 0 V%). Overall, PP eradication rate (ER) 84 F & 64 V%,  $p < 0.05$  (A 87 F & 57 V%, B, 50 F & 83 V%).

**Conclusions:** Pediatric *H. pylori* ER > 90% by systematically tailored AST treatment with a high dose of PPI and antibiotics.

**Conflict of interest disclosure:**

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P01.032.

**THE EFFECTIVENESS AND ADVERSE EVENTS OF FIRST- AND SECOND-LINE THERAPY IN THE TREATMENT OF *HELICOBACTER PYLORI* - DATA FROM A GREEK HOSPITAL**

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Cancer Hospital "Agios Savvas", Athens, Greece.

**Objective:** In Gastroenterology Department of "Agios Savvas", the guidelines of Maastricht VI consensus are followed for the diagnosis and treatment of *Helicobacter pylori* (*H. pylori*) infection. The purpose of the study was to evaluate the effectiveness and adverse events of non-bismuth quadruple/concomitant (1<sup>st</sup> line in our country until recently) and levofloxacin-based triple therapy (2<sup>nd</sup> line), in a sample of Greek population.

**Patients and Methods:** The diagnosis of *H. pylori* infection was made by histological examination, and the effectiveness of the eradication therapy was evaluated by Urea Breath Test. The adverse events were evaluated with a questionnaire that all patients filled out.

**Results:** Out of 300 patients, 248 (82.67%) had eradicated successfully the *H. pylori* with 1<sup>st</sup> line therapy. The remaining 52 (17.33%) patients in whom the 1<sup>st</sup> line therapy failed received 2<sup>nd</sup> line therapy and only 5 (1.67% of the total number of patients) of these 52 patients, failed to eradicate the microbe. From the 248 patients that successfully eradicated *H. pylori*, 79 (32%) had adverse events such as diarrhea (35.44%), epigastric pain (16.45%), epigastric discomfort (22.78%), taste disturbance (20.25%) and others (5.06%) but they concluded the therapy successfully. From the 52 patients that failed to eradicate *H. pylori* with the 1<sup>st</sup> line therapy, 19 patients failed to conclude the 14 days of therapy because of adverse events, such as diarrhea (26.3%), nausea (21%), abdominal pain (15.7%), epigastric discomfort (15.7%), taste discomfort (15.7%) and constipation (5.2%).

**Conclusions:** The initialization of usage of quadruple bismuth therapy is essential because the classic quadruple therapy does not have desirable eradication rates and appears adverse events.

**Conflict of interest disclosure:**

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**P01.033.**

**SUSCEPTIBILITY-GUIDED THERAPY VS. EMPIRIC THERAPY FOR *H. PYLORI* TREATMENT FAILURES: A NATIONWIDE LONGITUDINAL STUDY (SGT-HP TRIAL)**

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**Objective:** This study aimed to determine factors associated with *H. pylori* treatment failure and eradication rates of susceptibility-guided regimens and empiric therapy for patients.

**Patients and Methods:** Dyspeptic patients undergoing gastroscopy were enrolled between August 2014-August 2024. Treatment failure was defined as persistent *H. pylori* infection after completing at least 1 eradication regimen.

**Results:** Of 1,175 patients with *H. pylori* infection, 342 had treatment failure with the mean age of 61 years and 43.3% were males. AST was performed in 245 strains. Antibiotic resistance rates were 42.9% for metronidazole, 35.1% for levofloxacin, 24.9% for clarithromycin, 2.9% for amoxicillin, and 0.4% for tetracycline. Multivariate analysis demonstrated that MDR *H. pylori* strains (OR=8.59, 95%CI:2.97-24.80,  $p<0.001$ ) and sequential therapy as first-line treatment (OR11.19, 95%CI:1.35-92.73,  $p=0.025$ ) were significantly associated with treatment failure, while vonoprazan bismuth quadruple therapy was a protective factor for treatment failure (OR=0.06, 95%CI 0.01-0.47,  $p=0.007$ ). After treatment failures, there were 239 patients without AST and 100 who had AST performed. Patients with AST were further divided into 4 groups according to clarithromycin (CLR) and levofloxacin resistance (LVX). Bismuth quadruple therapy was the most used salvage regimens providing successful eradication for CLR-resistant strains. Bismuth quadruple therapy was also most frequently used for dual CLR and LVX resistance. For empiric therapy after treatment failures, furazolidone-based quadruple therapy yielded the highest eradication rate (83.3%), followed by sitafloxacin-based therapy (75%).

**Conclusions:** Bismuth quadruple therapy was the most used regimen for SGT, whereas furazolidone-based quadruple therapy yielded the highest eradication rate. SGT is a highly effective strategy for treatment of *H. pylori* eradication failure.

**Conflict of interest disclosure:**

R. Vilaichone: None. N. Aumpan: None. V. Mahachai: None.

## 1. HELICOBACTER - ROUND 03

### P01.045.

#### IMPACT OF *HELICOBACTER PYLORI* INFECTION AND SERUM PEPSINOGEN ON SKELETAL MUSCLE MASS

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**Objective:** *Helicobacter pylori* infection causes gastric mucosal atrophy, leading to a decrease in chief and parietal cells. Pepsin, essential for protein digestion, is activated from pepsinogen (PG) by gastric acid. A reduction in both gastric acid and pepsin may impair protein absorption and contribute to skeletal muscle loss. We examined the association between *H. pylori* infection, serum PG levels, and skeletal muscle mass.

**Patients and Methods:** 417 men and 685 women from the general population in Japan were analyzed. Skeletal muscle mass index (SMI) was assessed using bioelectrical impedance analysis. Low SMI was defined according to AWGS 2019 criteria. *H. pylori* infection status was determined by eradication history, serum anti-*H. pylori* IgG (EIA), and a stool antigen test (BLEIA). Serum PG levels were also measured. Age and BMI were included as covariates.

**Results:** In men, 47.8% of the low SMI group had current or past *H. pylori* infection, significantly higher than 28.8% in the normal group. Older age, lower BMI, and lower PG I were significant factors in both univariate and multivariate analyses. In women, 38.0% of the low SMI group had current or past infection, also significantly higher than 28.8% in the normal group. Univariate analysis showed associations with older age, lower BMI, and a lower PG I/II ratio, but multivariate analysis identified only age and BMI as significant.

**Conclusions:** The proportion of *H. pylori* infection was higher in the low SMI group. A decrease in PG I was observed only in men, suggesting sex-specific factors in muscle loss.

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### P01.046.

#### PREVALENCE OF PRIMARY CLARITHROMYCIN, METRONIDAZOLE AND LEVOFLOXACIN RESISTANCE IN PATIENTS INFECTED WITH *HELICOBACTER PYLORI* IN EUROPE: A REVIEW OF THE LAST FOUR DECADES

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**Objective:** The global rise in primary *H. pylori* antibiotic resistance has reduced treatment efficacy. Understanding regional clarithromycin (ClAR), metronidazole (MetR) and levofloxacin (LevR) resistance prevalence is essential. The aim of the study was to evaluate the prevalence of *H. pylori* primary ClAR, MetR, and LevR across Europe over the past four decades.

**Materials and Methods:** Bibliographic searches were performed (PubMed) up to March 2024. Studies focusing exclusively on children or conducted in non-European countries were excluded.

**Results:** A total of 218 studies published since 1990 were included: 188 provided information on ClaR, 138 on MetR, and 77 on LevR (Table 1). Average ClaR in Europe was 17%, increasing from 7.3% in the 1990s to 26% in 2010-2019, with a slight decrease to 22% in 2020-2024. The highest values were reported in Switzerland (66%), Ireland (50%), and Israel (44%). Southern Europe showed higher resistance rates (>15-20%) than northern regions (<10-15%). MetR remained consistently high (average 34%), particularly in Poland (66%), Turkey (67%), and Switzerland (60%). LevR was low in the 1990s but gradually increased, reaching ~15% during 2010-2019, and ranging between 20-25% recently.

**Conclusions:** In Europe, over the past four decades, primary ClaR has fluctuated but has consistently remained above 15%; MetR has remained notably high; and LevR has increased over time. These trends highlight the need for updated region-specific antibiotic strategies to improve *H. pylori* eradication success.

**TABLE 1. CLARITHROMYCIN, METRONIDAZOLE AND LEVOFLOXACIN PRIMARY RESISTANCE PREVALENCE IN EUROPE IN THE LAST FOUR DECADES (1990-2024).**

Country	Clarithromycin % (n/N)				Metronidazole % (n/N)				Levofloxacin % (n/N)			
	1990-1999	2000-2009	2010-2019	2020-2023	1990-1999	2000-2009	2010-2019	2020-2023	1990-1999	2000-2009	2010-2019	2020-2023
Armenia	NA	NA	3.6 (2/55)	NA	NA	NA	NA	NA	NA	NA	12.8 (7/55)	NA
Austria	3.3 (11/331)	17 (76/448)	24.6 (57/232)	NA	31.6 (104/330)	NA	10.2 (13/128)	NA	NA	12 (37/310)	9.4 (12/128)	NA
Belgium	6.9 (436/6369)	11.3 (493/4340)	18.2 (1362/7467)	18.9 (51/269)	29.3 (4236/14448)	30.9 (1343/4340)	35.7 (2293/6428)	53.9 (145/269)	NA	NA	24.5 (1574/6438)	26.8 (72/269)
Bosnia and Herzegovina	NA	NA	NA	28.3 (13/46)	NA	NA	NA	NA	NA	NA	NA	36.9 (17/46)
Bulgaria	9.4 (37/390)	18.1 (61/338)	21.7 (124/569)	30 (15/50)	30.2 (133/440)	26.3 (488/1857)	35.2 (200/569)	48 (24/50)	NA	NA	22.9 (131/569)	38 (19/50)
Croatia	NA	17.7 (245/1390)	21.1 (73/345)	NA	NA	23.3 (303/1301)	10.2 (35/345)	NA	NA	NA	4.6 (8/175)	NA
Denmark	NA	7.4 (6/81)	NA	NA	NA	40.2 (49/123)	NA	NA	NA	NA	NA	NA
Estonia	2.8 (3/106)	3.3 (3/90)	NA	NA	43 (144/336)	49.2 (80/162)	NA	NA	NA	NA	NA	NA
Finland	NA	8.1 (108/1329)	NA	NA	25.6 (22/86)	40.6 (539/1329)	NA	NA	NA	7 (72/1037)	NA	NA
France	24.7 (78/314)	24.2 (599/2474)	19.9 (233/1167)	NA	43.7 (28/64)	46.9 (1101/2348)	50.7 (511/1007)	NA	NA	14.1 (267/1893)	15.8 (159/1007)	NA
Germany	2.8 (52/2143)	4.9 (99/2005)	13.3 (350/2624)	NA	25.4 (533/2094)	26.4 (536/2026)	29.7 (71/240)	NA	NA	11.7 (7/60)	14.5 (263/1816)	NA
Greece	30 (15/50)	NA	33.9 (65/192)	NA	NA	NA	31.1 (42/135)	NA	0 (0/50)	NA	5.3 (3/57)	NA
Hungary	NA	17.3 (41/238)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iceland	NA	NA	9 (9/105)	NA	NA	NA	1 (1/105)	NA	NA	NA	4 (4/105)	NA
Ireland	4.4 (25/557)	12.7 (19/148)	50.5 (53/105)	NA	35.7 (199/557)	28.9 (43/148)	NA	NA	NA	NA	15.2 (16/105)	NA
Israel	NA	8.2 (9/110)	48.9 (355/726)	43.8 (14/32)	NA	38.2 (42/110)	20.22 (147/726)	31.3 (10/32)	NA	NA	5.6 (47/843)	18.8 (6/32)
Italy	10.7 (115/1076)	18.1 (463/2567)	25.6 (1681/6567)	21 (49/231)	19.7 (145/736)	34.3 (486/1418)	40.8 (2553/6257)	18.8 (18/96)	NA	10.8 (115/1068)	18.5 (1004/5432)	37.8 (51/135)

Continued

**TABLE 1. CLARITHROMYCIN, METRONIDAZOLE AND LEVOFLOXACIN PRIMARY RESISTANCE PREVALENCE IN EUROPE IN THE LAST FOUR DECADES (1990-2024).**

Country	Clarithromycin % (n/N)				Metronidazole % (n/N)				Levofloxacin % (n/N)			
	1990-1999	2000-2009	2010-2019	2020-2023	1990-1999	2000-2009	2010-2019	2020-2023	1990-1999	2000-2009	2010-2019	2020-2023
Lithuania	1.1 (1/89)	3.5 (6/171)	8.2 (5/67)	NA	24.7 (22/89)	34.45 (59/171)	32.8 (22/67)	NA	NA	NA	NA	NA
Netherlands	1.6 (31/2016)	5.9 (46/778)	10.53 (80/757)	47 (280/596)	18.1 (503/2787)	13.7 (105/769)	13.6 (102/752)	46 (274/596)	NA	NA	12.9 (24/185)	23 (137/596)
Norway	NA	5.9 (6/102)	9.5 (4/42)	NA	NA	22.5 (23/102)	38.1 (16/42)	NA	NA	NA	NA	NA
Poland	9.1 (6/66)	19.1 (58/303)	32.9 (71/216)	NA	54.5 (60/110)	45.3 (137/303)	66.1 (143/216)	NA	NA	3.9 (13/344)	8.6 (15/174)	NA
Portugal	13.4 (90/672)	NA	32.2 (47/145)	NA	30.6 (248/810)	NA	48.2 (70/145)	NA	NA	NA	26.2 (38/145)	NA
Romania	NA	NA	20 (18/90)	NA	NA	NA	NA	NA	NA	NA	30 (27/90)	NA
Russia	NA	7.7 (86/1111)	8.7 (15/170)	NA	NA	31.4 (349/1111)	41.6 (71/170)	NA	NA	14.7 (164/1111)	14.1 (24/170)	NA
Scotland	1.8 (3/162)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Serbia	NA	NA	NA	24.1 (68/283)	NA	NA	NA	NA	NA	NA	NA	8.3 (23/283)
Slovenia	NA	NA	14.3 (8/56)	NA	NA	NA	NA	NA	NA	NA	0 (0/56)	NA
Spain	8.2 (130/1587)	19.8 (1205/6075)	17.1 (2695/15711)	13.7 (176/1283)	25.7 (408/1587)	38.3 (2282/5957)	34.5 (2390/6927)	23.8 (305/1283)	10.2 (150/1475)	14.7 (334/2277)	18.4 (1440/7813)	19.3 (578/2993)
Sweden	2.2 (10/442)	1 (2/205)	NA	NA	27.4 (121/442)	76 (156/205)	NA	NA	NA	NA	NA	NA
Switzerland	27 (77/286)	50.9 (28/55)	66.3 (143/216)	NA	50.7 (343/675)	60.5 (33/55)	NA	NA	NA	NA	35.6 (77/216)	NA
Turkey	NA	29.2 (179/612)	27.6 (206/746)	33.4 (31/94)	NA	43.3 (77/178)	42.6 (160/374)	67.2 (41/61)	NA	23.1 (34/147)	29.1 (134/462)	30.7 (29/94)
United Kingdom	6.2 (26/415)	13.8 (505/3656)	28.7 (77/268)	NA	32.8 (1132/3447)	33.6 (1229/3656)	55.8 (150/268)	NA	NA	2.4 (1/40)	8.7 (23/268)	NA

Number of patients tested for each antibiotic: n (positive resistance results)/N (total number of patients with *H. pylori* infection). NA: not available.

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P01.047.

**LITERATURE-BASED HELICOBACTER PYLORI RESISTANCE DATA INTEGRATED INTO THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG): LIMITED USEFULNESS FOR PREDICTING FIRST-LINE EMPIRICAL TREATMENT EFFECTIVENESS**

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**Objective:** *H. pylori* infection causes gastritis, peptic ulcer, and gastric cancer. Without an effective vaccine, eradication therapy remains crucial. However, rising antibiotic resistance has compromised treatment effectiveness. This study evaluated whether literature-based data could predict first-line empirical treatment effectiveness.

**Materials and Methods:** Antibiotic resistance data for clarithromycin, metronidazole, and levofloxacin were obtained from bibliographic reviews, estimating prevalence for three timeframes: treatment year, previous year, and the weighted average of the last five years. These rates were matched with outcomes from the European Registry on *H. pylori* Management (Hp-EuReg), a prospective, real-world study involving 23 countries from 2008-2024. Modified intention-to-treat analyses were conducted using multivariate logistic regression with 10,000 stratified-bootstraps, with covariates: age, sex, country, prescription year, first-line treatment, proton pump inhibitor dosage, treatment duration, compliance, and assigned resistance values. Additional analyses assessed the impact of antibiotic-specific resistances on the corresponding treatments.

**Results:** The final analysis included 18,219 patients from 13 countries. The ORs obtained were as follows: for clarithromycin resistance and treatment success, OR=1.02 [1.00-1.03]; and for levofloxacin resistance and treatment success, OR=0.98 [0.97-1.00]. When only the previous year was considered, the OR was 1.01 [1.00-1.02]). For clarithromycin-amoxicillin triple therapy, clarithromycin resistance (current and last five years), the OR was

0.99 [0.99-1.00]). For clarithromycin-metronidazole triple therapy, the OR for clarithromycin was 0.97 [0.93-1.01] and for metronidazole 0.96 [0.93-1.00]) No significant associations were observed with other regimens.

**Conclusions:** Literature-based resistance data proved to be useless for guiding real-world first-line *H. pylori* therapy and confirmed the need to test antibiotic susceptibility in each individual patient to obtain reliable resistance information.

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**P01.048.**

**EFFECTIVENESS OF FIRST-LINE EMPIRICAL *HELICOBACTER PYLORI* TREATMENT OUTSIDE EUROPE: RESULTS OF 10,000 CASES FROM THE WORLD-WIDE REGISTRY ON *H. PYLORI* MANAGEMENT (WORLDHPREG)**

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**Objective:** *Helicobacter pylori* infection is a global health concern, with treatment success varying due to regional differences in antibiotic resistance, clinical practices, and healthcare access. This study evaluated the effectiveness of empirical first-line therapies outside of Europe.

**Patients and Methods:** The WorldHpReg is a global, prospective registry capturing real-world *H. pylori* management and outcomes. Data were collected from March 2022 to April 2025 using AEG-REDCap e-CRF. Effectiveness was analysed by modified intention-to-treat (mITT).

**Results:** Of 9,973 cases, 7,738 (78%) first-line empirical treatments were analysed across non-European regions including LATAM, Brazil, Africa, Australia, Canada, Egypt, India, Jordan, Pakistan, and Saudi Arabia. Ninety different regimens were used, with overall mITT effectiveness of 84%. Optimal ( $\geq 90\%$ ) effectiveness was achieved in Australia (95%), India (99%), Jordan (96%), and Saudi Arabia (91%). In LATAM, high cure rates were observed with non-bismuth quadruple therapy (91%) and several bismuth-based combinations, like amoxicillin-metronidazole (94%), metronidazole-doxycycline (90%), and amoxicillin-doxycycline (97%). The single-capsule formulation (94%) and metronidazole-tetracycline (91%) were also highly effective in LATAM, with 97% in Brazil. Standard triple therapy with amoxicillin-clarithromycin surpassed 90% in select regions, though patient numbers were limited. Most other regimens yielded suboptimal results (Table 1).

**Conclusions:** First-line therapies for *H. pylori* yielded overall suboptimal results outside Europe but achieved optimal outcomes in some regions using adapted regimens, emphasizing the need for region-specific treatment protocols to improve eradication success globally.

**TABLE 1. MODIFIED INTENTION-TO-TREAT EFFECTIVENESS OF MOST FREQUENT FIRST-LINE EMPIRICAL TREATMENTS WORLD-WIDE.**

Country Treatment(a)	LATAM N (% mITT)	Brazil	Africa	Australia	Canada	Egypt	India	Jordan	Pakistan	Saudi Arabia
Triple-C+A	1,041(75%)	1,826(80%)	25(92%)	19(95%)	NA	4(100%)	61(100%)	14(100%)	53(59%)	7(86%)
Concomitant-C+A+M	613(91%)	1(100%)	NA	NA	6(83%)	NA	NA	29(86%)	NA	NA
Dual-A	340(86%)	116(89%)	NA	NA	NA	NA	NA	NA	NA	NA
Quadruple-A+M+B	259(94%)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Quadruple-M+D+B	267(90%)	2(100%)	NA	NA	NA	NA	NA	NA	NA	1(100%)
Triple-A+L	126(82%)	16(69%)	NA	NA	NA	45(100%)	NA	NA	12(42%)	11(100%)
Quadruple-M+Tc+B	177(90%)	30(97%)	1(100%)	NA	1(100%)	NA	NA	NA	NA	2(100%)
Quadruple-C+A+B	187(78%)	6(100%)	NA	NA	NA	NA	NA	NA	NA	NA
Quadruple-A+D+B	177(97%)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Single-capsule*	104(97%)	NA	NA	NA	NA	NA	NA	1(100%)	NA	40(88%)
Triple-C+T	NA	NA	43(67%)	NA	NA	NA	NA	NA	NA	NA
Other	483(89%)	85(79%)	3(100%)	NA	3(67%)	27(100%)	80(99%)	50(100%)	93(74%)	3(100%)
Overall	3,774(85%)	2,082(81%)	72(78%)	19(95%)	10(80%)	76(100%)	141(99%)	94(96%)	158(67%)	64(91%)

\*Treatments were categorised in 11 categories encompassing over 90% of first-line prescriptions world-wide. LATAM: Latin America; ASEAN: Association of South-East Asian Nations; A: amoxicillin; B: bismuth salts; C: clarithromycin; D: doxycycline; L: levofloxacin; M: metronidazole; T: tinidazole; Tc: tetracycline; \*Three-in-one single-capsule containing metronidazole, tetracycline and bismuth; N: total number of patients analysed; %: total number of patients with *H. pylori* eradicated; mITT: modified intention-to-treat.

#### Conflict of interest disclosure:

O.P. Nyssen\*: Other; Significant; Mayoly, Allergan/Abbvie, Richen, Juvisé and Biocodex. P. Parra\*: None. A. Riquelme: None. D. Reyes-Placencia: None. L.G.V. Coelho: None. R. Vilaichone: None. S.I. Smith: None. L. Kamani: None. S. Prasad Singh: None. M. Waid Akroush: None. F. Alsohaibani: None. M. Albo-raie: None. S.V. van Zanten: None. P. Katelaris: None. S.C. Shah: None. S.J. Inns: None. J.M. Remes-Troche: None. A. Cano-Català: None. L. Moreira\*\*: None. J.P. Gisbert\*\*: Other; Significant; Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé and Biocodex.

## P01.049.

**PRESCRIPTION OF FIRST-LINE EMPIRICAL TREATMENTS FOR *HELICOBACTER PYLORI* INFECTION OUTSIDE EUROPE: RESULTS OF 10,000 CASES FROM THE WORLD-WIDE REGISTRY ON *H. PYLORI* MANAGEMENT (WORLDHPREG)**

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**Objective:** *Helicobacter pylori* remains a significant global health concern. While effective treatments exist, variations in clinical practices and regional contexts necessitate continuous evaluation. This study assessed first-line empirical therapies for *H. pylori* infection outside Europe.

**Patients and Methods:** The WorldHpReg is a global, prospective registry capturing real-world *H. pylori* management and outcomes. Data were collected from March 2022 to April 2025 using AEG-REDCap e-CRF. Descriptive analyses and Chi-square tests were applied.

**Results:** Among 9,973 cases from non-European countries, 7,738 (78%) involved first-line empirical therapies. Patients were predominantly women (62%) with a mean age of 50. Diagnosis was primarily by histology (75%), while urea breath tests and stool antigen tests were less common. Ninety different first-line regimens were identified (Table 1). The most used was triple therapy (PPI or P-CAB plus amoxicillin-clarithromycin, 41%), especially in Brazil, India, and Latin America. Concomitant quadruple therapy (PPI-amoxicillin-clarithromycin-metronidazole) followed (9%), notably in Canada, Jordan, and Latin America. Bismuth quadruple therapy was infrequent, except in Saudi Arabia and Latin America. Alternative or region-specific therapies included levofloxacin or tinidazole-based regimens and dual therapy with PPI/P-CAB-amoxicillin. Most regimens lasted 14 days, with varying PPI doses. Use of new acid blockers like vonoprazan remained limited.

**Conclusions:** WorldHpReg highlights wide variability in *H. pylori* treatment across regions, with triple therapy predominating and limited adoption of quadruple regimens. Region-specific guidelines are essential to improve eradication outcomes globally.

**TABLE 1. MOST FREQUENT FIRST-LINE EMPIRICAL TREATMENTS WORLDWIDE.**

Country Treatment <sup>a</sup>	N (%)	LATAM	Brazil	Africa	ASEAN	Australia	Canada	Egypt	India	Jordan	Pakistan	Saudi Arabia
Triple-C+A	3,187(41%)	1,069(27%)	1,907(87%)	39(17%)	NA	19(100%)	1(3.2%)	4(5.1%)	69(45%)	15(14%)	53(34%)	11(14%)
Concomitant-C+A+M	692(8.9%)	635(16%)	1(0%)	NA	1(0.1%)	NA	24(77%)	NA	NA	31(30%)	NA	NA
Dual-A	476(6.2%)	360(9.2%)	116(5.3%)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Quadruple-A+M+B	273(3.5%)	273(7%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Quadruple-M+D+B	272(3.5%)	269(6.9%)	2(0.1%)	NA	NA	NA	NA	NA	NA	NA	NA	1(1.3%)
Triple-A+L	221(2.9%)	133(3.4%)	16(0.7%)	NA	NA	NA	NA	46(59%)	NA	1(1%)	12(7.6%)	13(16.3%)
Quadruple-M+Tc+B	221(2.9%)	178(4.5%)	38(1.7%)	1(0.4%)	NA	NA	1(3.2%)	NA	NA	NA	NA	3(3.8%)
Quadruple-C+A+B	204(2.6%)	197(5%)	6(0.3%)	NA	NA	NA	NA	NA	1(0.7%)	NA	NA	NA

*Continued*

**TABLE 1. MOST FREQUENT FIRST-LINE EMPIRICAL TREATMENTS WORLDWIDE.**

Country Treatment <sup>a</sup>	N (%)	LATAM	Brazil	Africa	ASEAN	Australia	Canada	Egypt	India	Jordan	Pakistan	Saudi Arabia
Quadruple-A+D+B	177(2.3%)	177(4.5%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Single-capsule*	153(2%)	104(2.7%)	NA	NA	NA	NA	NA	NA	NA	1(1%)	NA	48(60%)
Triple-C+T	128(1.7%)	NA	NA	128(57%)	NA	NA	NA	NA	NA	NA	NA	NA
Overall	7,736 (100%)	3,916 (51%)	2,183 (28%)	224 (2.9%)	791** (10%)	19 (0.2%)	31 (0.4%)	78 (1%)	152 (2%)	104 (1.3%)	158 (2%)	80 (1%)

<sup>a</sup>Treatments were categorised in 11 categories encompassing over 90% of first-line prescriptions world-wide; LATAM: Latin America; ASEAN: Association of South-East Asian Nations; A: amoxicillin; B: bismuth salts; C: clarithromycin; D: doxycycline; L: levofloxacin; M: metronidazole; T: tinidazole; Tc: tetracycline. \*Three-in-one single-capsule containing metronidazole, tetracycline and bismuth; N: number of prescriptions; NA: non-available. \*\*From other treatment combinations.

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O.P. Nyssen\*: Other; Significant; Mayoly, Allergan/Abbvie, Richen, Juvisé and Biocodex. P. Parra\*: None. A. Riquelme: None. D. Reyes-Placencia: None. L.G.V. Coelho: None. R. Vilaichone: None. S.I. Smith: None. L. Kamani: None. S. Prasad Singh: None. M. Waid Akroush: None. F. Alsohaibani: None. M. Albo-raie: None. S.V. van Zanten: None. P. Katelaris: None. S.C. Shah: None. S.J. Inns: None. J.M. Remes-Troche: None. A. Cano-Català: None. L. Moreira\*\*: None. J.P. Gisbert\*\*: Other; Significant; Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé and Biocodex.

## P01.050.

**IMPACT OF DRUG DOSAGES ON THE EFFECTIVENESS OF FIRST-LINE BISMUTH QUADRUPLE THERAPY: RESULTS FROM 11,000 PATIENTS FROM THE EUROPEAN REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (HP-EUREG)**

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**Objective:** First-line empirical bismuth quadruple therapies including a proton pump inhibitor (PPI) and two antibiotics have been shown to be highly effective against *Helicobacter pylori* infection. However, there is limited evidence regarding their effectiveness based on drug dosages.

**Patients and Methods:** First-line bismuth quadruple regimens with more than 100 cases were selected from a prospective, non-interventional registry of the clinical practice of European gastroenterologists (Hp-EuReg; 2013-2024). Effectiveness was analysed by modified intention-to-treat (mITT) based on the different drug dosages.

**Results:** Overall, 10,767 first-line treatments were analysed (Table 1) showing  $\geq 90\%$  effectiveness in following regimens: PPI-clarithromycin-amoxicillin-bismuth (CAB) regardless of bismuth dosages and using A and C at standard doses; PPI-tetracycline-metronidazole-bismuth (TMB) with T  $\geq 1,500$  mg/day, M 1,500 mg/day, and bismuth  $\geq 480$  mg/day, with no benefit from higher bismuth doses; PPI-amoxicillin-metronidazole-bismuth (AMB) with A 2,000 mg/day, M  $\geq 1,000$  mg/day, and bismuth 480 mg/day, without relevant improvement when increasing M dosages; PPI-clarithromycin-metronidazole-bismuth (CMB) with M  $\geq 800$  mg/day, C 1,000 mg/day, and bismuth 480 mg/day, and did not improve with higher daily doses of bismuth; PPI-amoxicillin-levofloxacin-bismuth (ALB) with no differences observed when increasing the L dose above 500 mg/day. The remaining regimens did not reach mITT  $>90\%$ .

**Conclusions:** CAB, TMB, AMB, CMB, and ALB bismuth-containing regimens are highly effective ( $>90\%$ ) in clinical practice in Europe. Increasing bismuth dose above 480 mg/day did not improve effectiveness.

**Conflict of interest disclosure:**

S. Martínez-Domínguez: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Juvisé. A. Lanas: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Juvisé. E. Ceamanos: None. I. Voynovan: None. L. Jonaitis: None. L. Vologzanina: None. A. Sarsenbaeva: None. A. Lucendo: None. G. Fadieienko: None. D. Bordin: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Abbott, AstraZeneca, Biocodex, PRO.MED.CS Praha a.s, KRKA, Dr.Reddy's Laboratories. J. Kupcinkas: None. O. Gridnyev: None. M. Sánchez Alonso: None. A. Cano-Català: None. P. Parra: None. L. Moreira: None. F. Mégraud: None. C. O'Morain: None. J. Javier P. Gisbert\*: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Mayoly, Allergan, Diasorin, Biocodex, Juvisé, Richen. O. Nyssen\*: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Mayoly, Allergan, Diasorin, Biocodex, Juvisé, Richen.

**P01.051.**

**PRESCRIPTIONS AND EFFECTIVENESS OF ALTERNATIVE AND INFREQUENT  
HELICOBACTER PYLORI ERADICATION REGIMENS: INSIGHTS FROM  
THE EUROPEAN REGISTRY ON H. PYLORI MANAGEMENT (HP-EUREG)**

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**Objective:** Despite the recommendations of clinical guidelines, many alternative *Helicobacter pylori* (*H. pylori*) eradication regimens are still prescribed. Data on the frequency and effectiveness of these less commonly used treatments remain limited.

The aim of the study was to evaluate the frequency and effectiveness of less prescribed regimens within the European Registry on *Helicobacter pylori* Management (Hp-EuReg).

**Materials and Methods:** This ongoing international, prospective, non-interventional registry on the management of *H. pylori* infection began in 2013. Regimens prescribed in fewer than 5% of cases were classified as ‘less frequently prescribed’. Effectiveness was assessed using modified intention-to-treat (mITT) and per-protocol (PP) analyses.

**Results:** Among 82,510 prescriptions, 260 less prescribed regimens (5.5%) were identified, with 63% used in first-line therapy. Common first-line treatments encompassed bismuth-containing quadruple therapy with PPI-clarithromycin-metronidazole-bismuth (20%), non-bismuth hybrid quadruple therapy with clarithromycin-amoxicillin-metronidazole (9.5%), and dual therapy with PPI-amoxicillin (8.6%). Second-line regimens included triple therapies: PPI-amoxicillin-moxifloxacin (16%), PPI-clarithromycin-levofloxacin (11%), and PPI-metronidazole-levofloxacin (9.5%). In the third-line, the most common was bismuth-containing quadruple therapy including PPI-metronidazole-doxycycline-bismuth (27%), followed by triple therapies with PPI-clarithromycin-levofloxacin (6.8%) and PPI-amoxicillin-moxifloxacin (5.6%). Antibiotic-free regimens, such as PPI plus probiotics — *Lactobacillus bulgaricus* or *Lactobacillus reuteri* — were prescribed in 104 cases.

**Conclusions:** Among the various less prescribed *H. pylori* eradication regimens, few achieved eradication rates above 90%, highlighting the importance of evidence-based treatment adherence to optimize clinical outcomes.

**TABLE 1. FREQUENCY OF USE AND EFFECTIVENESS OF ALTERNATIVE AND INFREQUENT PRESCRIPTIONS IN FIRST-, SECOND- AND THIRD-LINE TREATMENTS.**

		Frequency, n (%)	Effectiveness mITT	Effectiveness PP
<b>Overall</b>	Quadruple-PPI+C+M+B	597 (13.2)	90.4%	90.7%
	Dual-PPI+A	339 (7.5)	70.8%	70.8%
	Quadruple-PPI+M+D+B	309 (6.8)	67.1%	67.7%
<b>First-line</b>	Quadruple-PPI+C+M+B	580 (20.3)	90.2%	90.5%
	Hybrid-PPI+C+A+M	270 (9.5)	94.2%	94.2%
	Dual-PPI+A	244 (8.6)	76.1%	76.1%
<b>Second-line</b>	Triple-PPI+A+Mx	153 (15.8)	91.8%	91.8%
	Triple-PPI+C+L	104 (10.7)	76.9%	76.7%
	Triple-PPI+M+L	92 (9.5)	75%	75%
<b>Third-line</b>	Quadruple-PPI+M+D+B	106 (26.8)	62.7%	63.3%
	Triple-PPI+C+L	27 (6.8)	52%	50%
	Triple-PPI+A+Mx	22 (5.6)	63.3%	63.3%
<b>Antibiotic free-regimens</b>	PPI+ <i>Lactobacillus bulgaricus</i>	55 (52.8)	87.3%	87.3
	PPI+ <i>Lactobacillus reuteri</i> %	22 (21.15)	40%	40.9%

n, number of patients receiving a prescription; C, clarithromycin; M, metronidazole; B, bismuth; A, amoxicillin; D, doxycycline; L, levofloxacin; Mx, moxifloxacin; R, rifabutin; PPI, proton pump inhibitor; mITT, modified intention to treat; PP, per protocol.

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## P01.052.

### THE METACHRONOUS GASTRIC CANCER RISK ACCORDING TO THE *HELICOBACTER PYLORI* INFECTION STATUS AND AGE GROUP IN ELDERLY EARLY GASTRIC CANCER WHO UNDERWENT ENDOSCOPIC SUBMUCOSAL DISSECTION

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**Objective:** We investigated the association between the *Helicobacter pylori* infection status and metachronous gastric cancer (MGC) according to age groups in elderly (age $\geq$ 75 years) early gastric cancer (EGC) patients.

**Patients and Methods:** This retrospective cohort study included 2,965 elderly EGC patients who underwent ESD curatively at 22 university hospitals between 2011 and 2020. Patients were categorized into three age groups: 75-79 years (group A, no=2,081), 80-84 years (group B, no=748), and  $\geq$ 85 years (group C, no=137). The primary outcome was the risk of MGC according to the initial *H. pylori* infection status.

**Results:** During a median follow-up of 4.1 years (interquartile range, 2.5-5.3 years), MGC occurred in 137 patients (6.6%) of group A, in 53 (7.1%) of group B, and in 3 (2.2%) of group C. In a multivariate Cox-analysis, positive-*H. pylori* infection (adjusted hazard ratio [aHR], 1.54; 95% CI, 1.16-2.05), initial multiple tumors (aHR, 1.93; 95% CI, 1.28-2.90), and tumor size (aHR, 1.01; 95% CI, 1.00-1.02) were risk factors for MGC. The significant associations between positive-*H. pylori* infection and metachronous gastric cancer was shown in the group A (aHR, 1.54; 95% CI, 1.10-2.17), whereas the association was not significant in the group B (aHR, 1.48; 95% CI, 0.86-2.55) and group C (aHR, 1.15; 95% CI, 0.07-19.99).

**Conclusions:** While *H. pylori* infection was a risk factor for metachronous GC in elderly EGC patients aged 75-79 years, the association was not significant in those aged  $\geq$ 80 years.

**Conflict of interest disclosure:**

Y. Kim: None. B. Lee: None. D. Jung: None. J. Park: None. H. Jung: None.

## P01.053.

### DROPLET DIGITAL PCR-BASED DETECTION OF CLARITHROMYCIN RESISTANCE ON RAPID UREASE TEST SAMPLES PREDICTS *HELICOBACTER PYLORI* ERADICATION SUCCESS: A NEW ZEALAND COHORT STUDY

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**Objective:** The aim of the study was to evaluate the feasibility and clinical utility of detecting clarithromycin resistance genes from stored Rapid Urease Test (RUT) samples using droplet digital PCR (ddPCR), and to assess the impact of resistance on *H. pylori* eradication in a New Zealand cohort.

**Patients and Methods:** Patients undergoing gastroscopy with a positive RUT were treated with empiric omeprazole-based triple therapy. ddPCR was used to detect 23S rRNA clarithromycin resistance mutations from stored RUT biopsies. Eradication success was assessed at least six weeks post-treatment using stool antigen testing.

**Results:** Among 84 patients, clarithromycin resistance genes were detected in 13 (15.5%). Overall, 88.1% achieved eradication. However, eradication was significantly lower in resistance-positive patients (38.5%) compared to those without resistance (97.2%,  $p < 0.001$ ). Treatment regimen and duration were not associated with outcomes. Resistance prevalence was similar between Māori and Pacific people (18.2%) and other ethnicities (14.8%), although subgroup sizes limited interpretation.

**Conclusions:** ddPCR on RUT samples is a feasible, effective method for detecting clarithromycin resistance. Resistance status was the primary predictor of eradication success, highlighting the limitations of empiric therapy. Molecular-guided treatment may improve outcomes and support antibiotic stewardship. These findings support expansion of this approach to non-invasive stool-based testing in primary care and screening contexts.

**Conflict of interest disclosure:**

S.J. Inns: None. S. Sowerbutts: None. B. Yumnam: None. K. Payne: None. G. Wheller: None. M. Camberis: None. T. Mules: None.

**P01.054.**

**CLINICAL IMPACT OF *HELICOBACTER PYLORI* TREATMENT ON GASTROINTESTINAL BLEEDING AFTER PERCUTANEOUS CORONARY INTERVENTION IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION - A NATIONWIDE POPULATION-BASED COHORT STUDY**

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**Objective:** Little is known about the role of *H. pylori* treatment (HPT) for peptic ulcer bleeding in patients receiving dual antiplatelet therapy (DAPT) after percutaneous coronary intervention (PCI). Therefore, we evaluated the impact of HPT after PCI on the occurrence of gastrointestinal bleeding (GIB) and major adverse cardiovascular events (MACE).

**Patients and Methods:** Patients who underwent PCI from January 1, 2002, to December 31, 2018, were searched through disease classification code analysis from the National Health Insurance Service claims data, and antiplatelet drugs administered with aspirin were investigated by searching Drug claims data. Among them, patients who underwent endoscopic hemostasis for GIB within 12 months after PCI were investigated whether HPT was related with GIB and MACE.

**Results:** A total of 12,247 patients were included in the cohort. Among them, 10,529 patients received DAPT after PCI. A total of 918 patients (8.7%) experienced GIB, of which 570 (62.0%) underwent endoscopic hemostasis. After endoscopic hemostasis, 254 patients (44.5%) received HPT. The occurrence of GIB was significantly higher at 12 months of DAPT administration compared with 6 months. Additionally, the incidence of GIB increased significantly from 6 months after DAPT administration. The HPT group had a significantly lower GI rebleeding rate than the non-HPT group. Especially, GI rebleeding decreased significantly after 3 months of the treatment. In terms of MACE, the 6-month DAPT group had significantly higher all-cause mortality and cardiovascular mortality compared with the 12-month DAPT group.

**Conclusions:** In patients receiving DAPT after PCI, a 'test-and-treat' approach for *H. pylori* may help prevent GIB.

**Conflict of interest disclosure:**

B. Kim: None. D. Lee: None. Y. Kim: None.

**P01.055.**

**MYCOBACTERIUM BOVIS BCG REVERSES DELETERIOUS EFFECTS OF *H. PYLORI* COMPONENTS TOWARDS GASTRIC BARRIER CELLS *IN VITRO***

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**Objective:** *Mycobacterium bovis* (*M. bovis*) Bacillus Calmette-Guerin (BCG) strain used in immunotherapy of bladder cancer (onco-BCG) due to its acid tolerance can be a candidate for prevention or reversal of deleterious effects towards the gastric cell barrier initiated by the gastric pathogen *Helicobacter pylori*, with high resistance to commonly used antibiotics. The colonisation of the gastric mucosa by *H. pylori* promotes oxidative stress and apoptosis, resulting in damage to the gastric barrier. The aim of this study was to examine the ability of onco-BCG bacilli to control the *H. pylori*-driven gastric damage using the model of *Cavia porcellus* primary gastric epithelial cells or fibroblasts *in vitro*.

**Material and Methods:** These cells were treated with *H. pylori* surface antigens (glycine acid extract-GE or lipopolysaccharide-LPS) alone or with onco-BCG bacilli and evaluated for cell apoptosis and proliferation in conjunction with the level of soluble lipid peroxidation marker (s4HNE). The cell migration was determined by “wound healing assay”, while cytokine response of cells, including interleukin (IL)-33, IL-1 $\beta$ , IL-8 and tumour necrosis factor alpha (TNF- $\alpha$ ), was measured by ELISA.

**Results:** The apoptosis of cells pulsed *in vitro* with *H. pylori* surface components present in GE or with LPS was reduced after exposure of cells to mycobacteria. Similarly, the cell regeneration diminished by *H. pylori* LPS has been improved in response to mycobacteria.

**Conclusions:** This study reveals that the vaccine against mycobacteria may reduce gastric barrier damage induced by *H. pylori* infection.

**Conflict of interest disclosure:**

W. Gonciarz: None. P. Jaroniek: None. M. Chmiela: None.

## 1. HELICOBACTER - ROUND 04

### P01.068.

#### EVALUATION OF *HELICOBACTER PYLORI* INFECTION AND CURRENT ANTIBIOTIC RESISTANCE PATTERNS IN DYSPEPTIC PATIENTS FROM TURKEY: PRELIMINARY FINDINGS

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**Objective:** The increasing antimicrobial resistance of *Helicobacter pylori* represents a significant clinical concern, particularly as it constitutes a major factor in treatment failure. Accordingly, performing antimicrobial susceptibility testing and monitoring regional resistance patterns of *H. pylori* are essential for guiding effective therapeutic strategies. This study aimed to investigate the presence of *H. pylori* and its resistance to clarithromycin, metronidazole, levofloxacin, amoxicillin, tetracycline, and rifampicin in patients diagnosed with non-ulcer dyspepsia or duodenal ulcer in Samsun, Turkey.

**Patients and Methods:** In this prospectively designed, randomized study, gastric biopsy specimens demonstrating a positive rapid urease test within two minutes were cultured on selective *H. pylori* agar. In isolates with confirmed growth, minimum inhibitory concentrations (MICs) for clarithromycin, metronidazole, levofloxacin, amoxicillin, tetracycline, and rifampicin were determined using the gradient diffusion method. Results were interpreted according to the current EUCAST breakpoints.

**Results:** The study included 61 patients, comprising 37 (60.7%) with non-ulcer dyspepsia and 24 (39.3%) with duodenal ulcer. *H. pylori* growth was achieved in 51 (83.6%) biopsy specimens, and antimicrobial susceptibility testing was performed in 33 (64.7%) of these isolates. In our study, resistance rates to clarithromycin, metronidazole, and levofloxacin were found to be 13.7%, 15.6%, and 24.2%, respectively. Multidrug resistance was detected in 21.2% of the isolates, while 69.7% of the isolates were susceptible to all tested antibiotics.

**Conclusions:** The findings indicate that current treatment regimens for *H. pylori* in our region remain largely effective. Nevertheless, considering global resistance trends, continuous local surveillance and the implementation of rational antibiotic use policies are imperative to ensure the sustained efficacy of eradication therapies.

**Conflict of interest disclosure:**

R. Caliskan: None. E. Tas: None. U. Aykut: None. T. Akyol: None. H. Eruzun: None. K. Demir: None. S. Onem: None. F. Tatlidil: None. M. Taskin: None.

**P01.069.**

**HELICOBACTER PYLORI INFECTION AND HISTOPATHOLOGICAL ANALYSIS OF GASTRIC MUCOSAL CHANGES IN PATIENTS WITH DYSPEPTIC SYMPTOMS – A REGIONAL EVALUATION**

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**Objective:** The histopathological damage caused by *Helicobacter pylori*-induced chronic active inflammation in the gastric mucosa plays a critical role in disease progression and treatment planning. This study aimed to evaluate the presence of *H. pylori* and histopathological changes in gastric biopsy specimens of patients with dyspeptic complaints in Samsun, Turkey.

**Patients and Methods:** Gastric biopsy specimens from 71 patients who tested positive for *H. pylori* via rapid urease test were histopathologically evaluated. Antral and corpus biopsy samples were assessed histopathologically using the Sydney System criteria for *H. pylori* presence, neutrophilic infiltration, chronic inflammation, glandular atrophy, and intestinal metaplasia.

**Results:** In antral biopsies, *H. pylori* positivity was detected in 85.9% of patients, with neutrophilic activity in 78.9%, chronic inflammation in 100%, glandular atrophy in 53.5%, and intestinal metaplasia in 12.7%. In corpus biopsies, these rates were 84.5%, 73.2%, 100%, 42.3%, and 8.5%, respectively. A statistically significant association was found between *H. pylori* presence and neutrophilic activity and chronic inflammation in both regions ( $p < 0.05$ ). Glandular atrophy showed a significant correlation with *H. pylori* in the antrum, whereas intestinal metaplasia did not.

**Conclusions:** Our findings indicate that *H. pylori* infection induces a prominent acute and chronic inflammatory response in the gastric mucosa. However, advanced lesions such as intestinal metaplasia cannot be solely attributed to the presence of *H. pylori*, as these alterations are known to arise from multifactorial etiologies. Considering the current status of gastric cancer cases in our region and the present results, it is evident that early diagnosis and treatment of gastric pathologies require not only histopathological evaluation but also regular follow-up and the implementation of appropriate eradication protocols.

**Conflict of interest disclosure:**

R. Caliskan: None. E. Tas: None. F. Tatlidil: None. U. Aykut: None. T. Akyol: None. H. Eruzun: None. S. Onem: None. K. Demir: None. M. Taskin: None.

**P01.070.**

**HELICOBACTER PYLORI ERADICATION PROMOTES A SYSTEMIC ANTI-INFLAMMATORY SHIFT IN DUODENAL ULCER PATIENTS COMPARED TO THOSE WITH GASTRITIS**

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**Objective:** Although *Helicobacter pylori* infection is widely known to induce chronic gastric inflammation, its contribution to low-grade sustained systemic inflammation remains unclear. Thus, we sought

to investigate the effect of *H. pylori* eradication on systemic inflammatory activity through the analysis of plasma cytokine levels in patients with either gastritis (GA) or duodenal ulcer (DU).

**Patients and Methods:** We included fifty-four patients who underwent upper gastrointestinal endoscopy for dyspepsia and were diagnosed with either GA or DU. Plasma cytokine levels were measured before and after bacterial eradication using ELISA. Paired comparisons within each group (GA and DU) were performed using Wilcoxon signed-rank test. Differences between groups at baseline and post-treatment were analyzed using Mann-Whitney U test.

**Results:** In the GA group, all measured cytokines—IL-1 $\alpha$ , IL-1 $\beta$ , IL-2, IL-6, IL-8, IL-10, IL-12p70, IL-23, IFN- $\gamma$ , and TNF- $\alpha$ —showed significant post-treatment reductions. In the DU group, most cytokines decreased, but IL-2 and IL-12p70 did not reach statistical significance. IL-10 showed opposing trends: decreasing in GA (median: 2.96 to 0.49,  $p < 0.001$ ) and increasing in DU (median: 0.30 to 2.76,  $p < 0.001$ ). Baseline comparisons revealed higher levels of IL-1 $\alpha$ , IL-2, IL-6, IL-10, IL-12p70, IL-23, IFN- $\gamma$ , and TNF- $\alpha$  in GA compared to DU. Some intergroup differences persisted post-treatment, though cytokine profiles converged overall.

**Conclusions:** Our findings suggest that the eradication of *H. pylori* reduces pro-inflammatory cytokine levels in GA patients and induces a shift towards an anti-inflammatory profile in DU patients – which might influence low-grade systemic inflammation management.

**Conflict of interest disclosure:**

F. Freire de Melo: None. F.F.B. Lemos: None. R.A. Sodr  Leal: None. G.A. Rocha: None. D.M.D. Queiroz: None.

**P01.071.**

**EFFICACY COMPARISON OF 7- AND 14-DAY P-CAB-BASED BISMUTH-CONTAINING QUADRUPLE REGIMEN WITH PPI-BASED BISMUTH-CONTAINING QUADRUPLE REGIMEN FOR *HELICOBACTER PYLORI* INFECTION: AN OPEN-LABEL, MULTICENTER, RANDOMIZED CONTROLLED TRIAL**

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**Objective:** Potassium-competitive acid blocker (P-CAB)-based regimens for *Helicobacter pylori* eradication may provide superior efficacy compared to proton pump inhibitor (PPI)-based regimens. This study compared the efficacy and safety of P-CAB-based bismuth-containing quadruple regimen (PC-BMT) with PPI-based regimen (P-BMT) in the area with high clarithromycin resistance.

**Patients and Methods:** In this randomized, multicenter controlled trial, 354 patients with *Helicobacter pylori* infection were assigned to one of three treatment groups: 7-day PC-BMT (n = 119), 14-day PC-BMT (n = 118), or 14-day P-BMT (n = 117). Each regimen included bismuth subcitrate, metronidazole, and tetracycline, combined with either tegoprazan (P-CAB) or a PPI. Outcomes included eradication rates, treatment-related adverse events, and compliance. Antibiotic resistance was evaluated by culture.

**Results:** In the modified intention-to-treat analysis, the 14-day PC-BMT group demonstrated a significantly higher eradication rate (82.9%) than the 7-day PC-BMT and 14-day P-BMT groups (each 80.5%;  $p = 0.023$ ). Per-protocol analysis showed higher eradication rates for 7-day (81.7%) and 14-day PC-BMT (86.5%) compared to 14-day P-BMT (79.3%;  $p = 0.027$  and  $0.002$ , respectively). No significant differences were observed in treatment-related adverse events or compliance. Eradication rates were not significantly affected by antibiotic resistance.

**Conclusions:** Both 7-day and 14-day PC-BMT regimens are well tolerated and more effective than 14-day P-BMT. The 14-day PC-BMT regimen appears to be a promising first-line treatment option for *Helicobacter pylori* infection in areas with high clarithromycin resistance.

**Conflict of interest disclosure:**

H. Lim: None. W. Shin: None. H. Jang: None.

P01.074.

**DIAGNOSTIC FEATURES OF AUTOIMMUNE GASTRITIS WITH DIFFERENT  
HELICOBACTER PYLORI INFECTION STATUS**

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**Objective:** The aim of the study was to improve the diagnosis of autoimmune gastritis (AIG) in individuals with different *H. pylori* (HP) infection status, to identify the most informative clinical, endoscopic and histopathological features of the disease.

**Patients and Methods:** 124 patients with chronic gastritis were examined, including 35 cases of autoimmune gastritis (AIG), 38 - HP-positive autoimmune gastritis, 51 - HP-associated gastritis. The examination included clinical and laboratory studies, gastroscopy with biopsy examination according to OLGA-system recommendations.

**Results:** The most informative diagnostic features of AIG were identified: postprandial distress syndrome, vitamin B12 deficiency, anemic and sideropenic syndromes, comorbidity with autoimmune thyroiditis, presence of endoscopic signs of atrophy and intestinal metaplasia with obligatory involvement of the stomach body. In patients with AIG and AIG+HP the gastritis grade III prevailed (54.3% and 60.5%) and stage III dominated in AIG+HP group in comparison with the HP-associated group (grade II and stage II predominated,  $p<0.05$ ). In patients with AIG pseudopyloric metaplasia, complete intestinal metaplasia, neuroendocrine hyperplasia were statistically significantly more frequent in the gastric body mucosa ( $p<0.001$ ). In a part of patients with AIG and absence of HP in the medical history there were revealed signs of inflammation and atrophy of the antral mucosa, probably due to modulation of gastric microbiota on the background of hypochlorhydria.

**Conclusions:** Detection of multifocal atrophic gastritis in patients with current or previous *H. pylori* infection and the presence of informative features of AIG requires further investigation to exclude autoimmune-associated inflammation of the gastric mucosa.

**Conflict of interest disclosure:**

M. Livzan: None. S. Mozgovoï: None. O. Gaus: None. D. Bordin: None.

P01.075.

**DIAGNOSTIC ACCURACY OF PCR-BASED HELICOBACTER PYLORI TESTING COMPARED  
TO CONVENTIONAL METHODS**

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**Objective:** PCR-based approach for detecting *Helicobacter pylori* (*H. pylori*) infection offer an “all-in-one” solution, such as highly accurate diagnosis and the possibility of resistance testing. The aim of this study was to systematically evaluate the diagnostic accuracy of PCR-based *H. pylori* testing from biopsies in comparison with established reference methods.

**Patients and Methods:** A total of 529 patients were enrolled in this prospective study. *H. pylori* status was systematically characterized by histology, microbiological culture, rapid urease test and serological status. DNA from biopsies was used for *H. pylori*-PCR analysis and for clarithromycin resistance-associated mutations in the 23S rRNA gene (CLA2143G and CLA2142G).

**Results:** Using combined histological and/or microbiological detection as the gold standard, *H. pylori* was identified in 167 of 529 samples (31.6%), while 362 samples (68.4%) were negative. Among the positive cases, *H. pylori* was detected by histology in 142 (86.6%) and by culture in 145 (88.9%) samples. The PCR-based test identified 169 samples (31.9%) as positive, of which 146 (87.4%) were consistent with the gold standard. The PCR-based analysis demonstrated a sensitivity of 92% and a specificity of 94%, showing no significant inferiority compared to histological detection. In a subset of 109 samples

analyzed for clarithromycin resistance, 44 (40.4%) tested positive and 65 (59.6%) tested negative by both culture and PCR. Discordant results occurred in only 4 samples (3.7%).

**Conclusions:** PCR offers high diagnostic accuracy for the detection of *H. pylori* infection and associated clarithromycin resistance and shows strong potential for integration into routine clinical practice.

**Conflict of interest disclosure:**

F. Herder: None. C. Thon: None. C. Schulz: None. T. Wex: None. P. Malfertheiner: None. A. Link: B. Research Grant (principal investigator, collaborator or consultant and pending grants as well as grants already received); Significant; EFRE, BMBF. D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Significant; Janssen, Luvos. F. Consultant/Advisory Board; Significant; Ferring. M. Venerito: None.

**P01.077.**

**MICROBIOLOGICAL QUALITY OF BOTTLED WATER AND PRESENCE OF *HELICOBACTER PYLORI* DNA IN BOGOTÁ (COLOMBIA)**

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**Objective:** *Helicobacter pylori* is a pathogenic bacterium that colonizes the mucosa of the human gastric. It is responsible for various gastroduodenal infections and, since 2002, has been classified by the United States Environmental Protection Agency as an emerging pathogen on its list of candidate contaminants for drinking water. Several global studies have reported the presence of *H. pylori* in drinking water, surface water, wastewater, and bottled water. The objective of this study was to assess the microbiological quality of bottled water sold in Colombia, as well as to detect the presence of *H. pylori* DNA.

**Materials and Methods:** Thirty samples of bottled water from different brands sold in Colombia, were analyzed. Viral microbiological indicators were detected using culture techniques, the source discrimination markers of human fecal contamination and *H. pylori* were detected by PCR.

**Results:** The results of the study showed the presence of somatic bacteriophages in 13.4% (4/30) of the samples analyzed, as well as F-specific RNA phages in 3.3% (1/30). Additionally, molecular markers used to identify sources of fecal contamination were detected: HF187 in 13.4% (4/30), ADO in 10% (3/30), and the absence of DEN markers. However, *H. pylori* were detected using specific techniques in 16.7% (5/30) of the samples.

**Conclusions:** This study is the first to collectively determine the presence of viral indicators, molecular markers of fecal contamination, and *H. pylori* in bottled water in Colombia. The detection DNA of *H. pylori* in the analyzed water could be proposed as a potential molecular marker to be included in the group of Microbial Source Tracking indicators.

**Conflict of interest disclosure:**

F.J. Vesga: None. D. Cobayan-López: None. C. Venegas: None. A.A. Trespalcios: None.

**P01.078.**

**SCREENING FOR *HELICOBACTER PYLORI*, GASTRIC ATROPHY AND AUTOIMMUNE GASTRITIS IN A SINGLE CENTRE IN BULGARIA**

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**Objective:** Half of the world's population is infected with *Helicobacter pylori* (*H. pylori*) as data from Bulgaria suggests that about 60% of the nation is affected. *H. pylori* increase the risk of several gastric and extragastric diseases.

**Patients and Methods:** We studied 86 patients- 46 men, mean age 47.86±16.73 years, 27 smokers. Screening for *H. pylori* prevalence, autoimmune gastritis (AIG) and gastric atrophy was performed by serological testing of a complete gastropanel, including pepsinogen-I (PG-I), PG-II, gastrin-17 (G-17), *H. pylori* IgG; anti-parietal-cell antibodies (APCA), anti-intrinsic-factor (AIF) using ELISA.

**Results:** Mean levels of G-17, PG-I, PG-II and PGI/PGII ratio were as follows:  $9.38 \pm 10.28$  pmol/L;  $117.19 \pm 55.31$   $\mu$ g/L;  $15.72 \pm 10.77$   $\mu$ g/L and  $9.33 \pm 5.30$ . 18 patients had low G-17. 3 patients had low PG-I as in atrophy in the corpus, and 33 patients had low PG-II. 30 patients had positive *H. pylori* IgG and half of them had low PG-II. AIG was diagnosed by positive APCA and AIF in 38 patients, moreover, 15 of them had positive *H. pylori* IgG. By iron-deficiency anaemia, we observed higher *H. pylori*-titer. Smoking and gender did not affect the levels in the gastropanel. According to the mucosa status, 40 patients had healthy mucosa (17 of them were with AIG), 14 had high acid output in the corpus, 26 active *H. pylori* infection, 6 atrophic gastritis, and interestingly, they all had AIG.

**Conclusions:** *H. pylori* and AIG affect more than half of the screened patients in our study, which should increase attention for the need for national screening programs, aiming proper treatment and follow-up to reduce the risk of serious gastric diseases and their complications.

**Conflict of interest disclosure:**

M. Kovacheva-Slavova: None. B. Vladimirov: None. V. Dimitrov: None.

**P01.079.**

**THERAPEUTIC OUTCOMES OF TAILORED ERADICATION THERAPY FOR *HELICOBACTER PYLORI* ACCORDING TO 23S RRNA POINT MUTATION TYPES IN A KOREAN POPULATION**

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**Objective:** Clarithromycin resistance in *Helicobacter pylori* is frequently associated with point mutations in the 23S ribosomal RNA gene. This study aimed to assess the prevalence of these mutations and evaluate the impact of tailored eradication therapy according to specific mutation types.

**Patients and Methods:** A retrospective analysis was conducted on patients who underwent endoscopy and multiplex real-time PCR testing for *H. pylori* infection between 2018 and 2024 at Seoul National University Hospital Healthcare System Gangnam Center, Seoul, Republic of Korea. Patients without 23S rRNA mutations received standard triple therapy, while those harboring mutations (A2142G, A2143G, or both) were treated with bismuth-based quadruple regimens.

**Results:** Among the 11,165 patients, 8,497 (76.08%) tested positive for *H. pylori*. Of these, 2,851 (33.56%) exhibited clarithromycin resistance-associated mutations: 255 (3.00%) had A2142G, 2,513 (29.59%) had A2143G, and 83 (0.98%) had both mutations. The eradication success rate was 90.25% in the non-mutated group and 89.23% in the mutation-positive group ( $p=0.368$ )—specifically, 93.83% for A2142G, 88.88% for A2143G, and 87.88% for those with both mutations ( $p=0.374$ ).

**Conclusions:** The prevalence of clarithromycin resistance in *H. pylori* is notably high in Korea. However, mutation-guided treatment strategies can achieve eradication rates comparable to those in non-resistant cases, supporting the utility of tailored therapy based on molecular resistance profiling.

**Conflict of interest disclosure:**

Y. Han: None. J. Choi: None. S. Chung: None.

## 1. HELICOBACTER - ROUND 05

### P01.092.

#### THE ORIGIN AND PATHOGENICITY OF *HELICOBACTER PYLORI* STRAINS IN ESTONIA

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**Objective:** The gram-negative gastric pathogen *Helicobacter pylori* (HP) is highly prevalent in Eastern Europe, including Estonia. Unfortunately, new data for clinical decision making is lacking and gastric cancer incidence in Estonia is once again increasing. Our goal is to provide new insights into the origin and pathogenicity of Estonian HP strains.

**Patients and Methods:** Gastric biopsy samples (antrum and corpus) were collected from 23 individuals with gastric disorders, out of which 16 were infected with HP. The DNA from 89 strains was analyzed with PCR methods and whole-genome sequencing (WGS) was performed on 58 strains using the PacBio Sequel II platform followed by Flye *de novo* genome assembly.

**Results:** Phylogenetic analysis revealed that strains isolated in Tallinn, Estonia are of Northern European and Eurasian origin, belonging mainly to subpopulations hspNEurope and hspEurasia, and having no common ancestor with Southern European strains or American strains. Among infected individuals, 9 patients (56%) harbored CagA-positive HP strains with EPIYA repeats ranging from 3 to 7 repeats per strain. Based on WGS data, many CagA-negative strains have partial cagPAI region, suggesting a diverse genotypic pattern and possible cag pathogenicity beyond CagA gene. Additionally, 5 patients' strains (31%) had VacA s1/m1 genotype, and 9 patients (56%) were infected with HP strains encompassing HtrA S171L mutation, providing evidence that Estonian HP strains are hypervirulent.

**Conclusions:** Highly pathogenic HP strains belonging to the subpopulations hspNEurope and hspEurasia together with above average prevalence are contributing to the emerging incidence of gastric cancer in Estonia.

#### Conflict of interest disclosure:

K. Roots: None. L. Truu: None. K. Suurmaa: None. I. Sarand: None. P. Spuul: None.

### P01.093.

#### COMPARISON OF TWO DIFFERENT PCR-BASED METHODS FOR THE DETECTION OF *HELICOBACTER PYLORI* AND ITS SUSCEPTIBILITY TO CLARITHROMYCIN IN COMPLICATED PEPTIC ULCER CASES

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**Objective:** Our aim was to compare two different PCR-based methods for detecting *Helicobacter pylori* (HP) and its susceptibility/resistance to clarithromycin (ClaSusc/ClaRes) in complicated (e.g., bleeding, perforated) peptic ulcer cases, where rapid eradication treatment following diagnosis is important to reduce the risk of recurrent disease.

**Patients and Method:** PCR was performed on paraffin-embedded formalin-fixed gastroduodenal biopsy specimens from 102 patients who underwent emergency intervention and sampling for gastrointestinal bleeding and/or perforated peptic ulcer, using two different primer pairs targeting the HP 23S rRNA gene, with two different detection methods: Samples showing a specific product by conventional PCR using the HPS/HPA primer pair were further analyzed by bidirectional Sanger sequencing. The HPJ primer pair was used in a FRET-based qPCR reaction.

**Results:** Out of the 102 patients, conventional PCR found 45 HP-negative cases (of which 2 were HP positive/ClaSusc by qPCR) and 57 HP-positive cases (sequencing: 52 ClaSusc and 5 ClaRes infections).

HP detection by FRET-qPCR resulted in 53 HP-negative cases (of which 9 were HP-positive/ClaSusc and 1 HP-positive/ClaRes by conventional PCR/Sanger sequencing) and 49 HP-positive cases (with 32 ClaSusc and 17 ClaRes melting curve results).

**Conclusions:** Our data suggest that a significant proportion of complicated (bleeding/perforated) peptic ulcers are *Helicobacter pylori*-associated. FRET-based qPCR is an ideal method for rapid, one-step identification of HP infection and its resistance to clarithromycin. However, further investigation of the reasons for differences in HP detection sensitivity and clarithromycin resistance rates detected by the two different PCR-based methods is needed to select the best approach.

**Funding:**

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**Conflict of interest disclosure:**

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**P01.095.**

**FEATURES OF THE APPOINTMENT OF DIAGNOSTIC TESTS FOR *HELICOBACTER PYLORI* BY DOCTORS OF VARIOUS SPECIALTIES**

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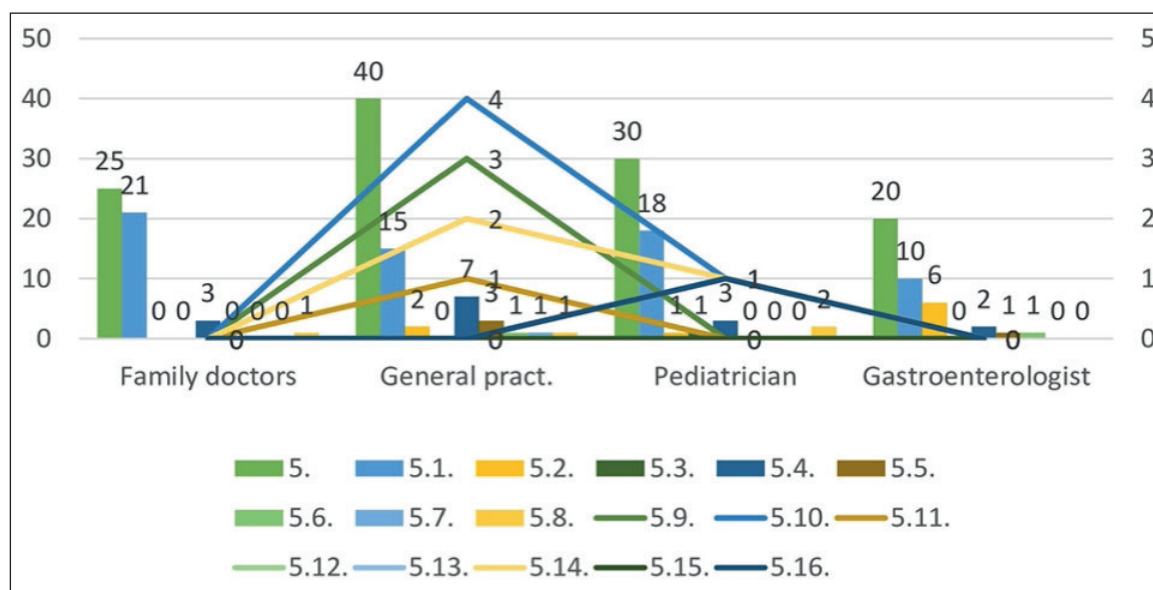
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**Objective:** *Helicobacter pylori* is a common pathogen associated with a number of gastrointestinal diseases. Timely and appropriate diagnosis of the infection plays a key role in preventing complications, including peptic ulcer disease and gastrocarcinoma. However, the use of *H. pylori* tests may vary depending on the medical specialty and clinical situation. The aim of the study was to assess the frequency and clinical situations of prescribing *H. pylori* tests by physicians of different specialties: family doctors, general practitioners, pediatricians and gastroenterologists within the framework of the TOGAS questionnaire.

**Patients and Methods:** A questionnaire survey (n=125) was conducted among physicians of four categories. Participants were asked to indicate the frequency of test prescriptions in various clinical scenarios (codes 5.1-5.16), including the presence of dyspepsia, the need to confirm eradication, taking NSAIDs, anemia of unknown genesis, etc. The data are presented as frequency distributions and compared between groups.

**Results:** The greatest activity in prescribing tests was observed among therapists and gastroenterologists, especially in situations corresponding to codes 5.6 and 5.7 (before the start of PPI therapy and in uncomplicated dyspepsia). Family doctors prescribed tests less often, mainly in the presence of symptoms (5.1) and in cases of gastritis-like symptoms (5.2). Paediatricians demonstrated moderate activity, mainly in the context of repeated complaints and family history. Significant differences were found between specialists in approaches to indications for testing ( $p < 0.05$ ,  $\chi^2$  analysis).

**Conclusions:** Approaches to *H. pylori* diagnostics vary significantly between physicians of different specialties. This highlights the need to develop uniform interdisciplinary guidelines on indications for testing and eradication therapy, especially at the primary level of medical care.



**FIGURE 1.** THIS DIAGRAM IS BASED ON DOCTORS' ANSWERS TO THE QUESTION "IN YOUR PRACTICE, WHEN WOULD YOU ORDER A TEST TO DETECT *HELICOBACTER PYLORI*?"

#### Conflict of interest disclosure:

G.H. Babayeva: None. Z.A. Nasibova: None. H.I. Ibrahimli: None. T.H. Eyvazov: None. R.A. Hasanov: None.

#### P01.096.

### ECONOMIC ANALYSIS OF SUSCEPTIBILITY GUIDED THERAPY COMPARED WITH EMPIRICAL THERAPY FOR *HELICOBACTER PYLORI* ERADICATION

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**Objective:** In Korea, tailored therapy based on clarithromycin resistance has been reported to be more effective than empirical therapy. This study evaluated the cost-effectiveness of tailored therapy based on genotypic resistance compared to empirical clarithromycin-based triple therapy.

**Patients and Methods:** A Markov model was developed to compare these two strategies. The patients in the tailored therapy group received clarithromycin-based triple therapy when they were susceptible to clarithromycin. Patients with clarithromycin resistance received bismuth-based quadruple therapy. The patients in the empirical therapy group received clarithromycin-based triple therapy. The primary outcome was the incremental cost-effectiveness rate (ICER), which was calculated by dividing the incremental cost by the eradication success rate between the two strategies.

**Results:** The estimated costs of tailored and empirical therapy were 241\$ and 168\$, respectively. The ICER was 5\$ meaning that this was the amount needed to increase the eradication rates by one percent. Subgroup analysis of the estimated costs of 7-day tailored and empirical therapy was 229\$ and 152\$. The corresponding costs of 14-day tailored and empirical therapy were 256\$ and 184\$. The ICER of the 7-day and 14-day regimens were 3.76\$ and 7.60\$.

**Conclusions:** This study determined that introducing tailored therapy based on genotypic resistance is a more cost-effective strategy for increasing *H. pylori* eradication in Korea.

#### Conflict of interest disclosure:

J. Kim: None. H. Lee: None. B. Kim: None.

P01.097.

**GASTRIC IL-17A, IL-23, AND IL-10 EXPRESSION CORELATED WITH CAGA, OIPA, AND BABA2 OF HELICOBACTER PYLORI IN PATIENTS WITH CLINICOPATHOLOGICAL OUTCOMES**

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**Objective:** *Helicobacter pylori* infection is associated with gastritis, precancerous gastric lesions and lead to gastric cancer. Cytokine induction and virulence factors may elucidate the implication in the pathogenesis of *H. pylori*-associated gastritis. The study aimed to determine mucosal cytokines expression level and virulence factors among *H. pylori* infected patients from Thailand.

**Patients and Methods:** Mucosal IL17A, IL23 and IL10 mRNA levels were measured by real-time PCR using endoscopic biopsies taken from the gastric mucosa of 152 patients infected with *H. pylori* and 46 uninfected patients. Presence of *cagA*, *oipA* and *babA2* virulence factors was evaluated using PCR as well as correlation between cytokine expression and virulence factors among *H. pylori* infected patients with chronic gastritis, atrophic gastritis and intestinal metaplasia from Thailand were determined.

**Results:** Expression of IL17A, IL23 and IL10 mRNA levels were significantly more elevated in *H. pylori*-positive patients than uninfected individuals. There was correlation between IL17A or IL10 expression level and the *cagA*, *oipA*, and *babA2* virulence factors ( $p = 0.004$ ) whereas IL23 was correlated with *oipA* virulence factors ( $p < 0.0001$ ). Moreover, IL-23 expression level was correlated with precancerous gastric lesions.

**Conclusions:** Enhanced induction of IL17A and IL23 may be involved in the *cagA*, *oipA*, and *babA2* virulence factors and pathogenesis of *H. pylori*-associated gastritis.

**Conflict of interest disclosure:**

T. Simawaranon Bartpho: None. P. Chaipadtha: None. T. Tongtawee: None. K. Chanpong: None. W. Wathanawongdon: None.

P01.098.

**REAL-WORLD INDICATIONS AND ERADICATION RATES OF FIRST-LINE H. PYLORI THERAPIES IN GERMANY: DATA FROM THE EUROPEAN REGISTRY ON H. PYLORI MANAGEMENT (HP-EUREG) WITH A FOCUS ON GASTRIC CANCER PREVENTION**

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**Objective:** *Helicobacter pylori* (*H. pylori*) is a key risk factor for gastric cancer (GC). In Germany, an intermediate-risk country, current S3 guidelines recommend a targeted test-and-treat approach in high-risk individuals for GC prevention. However, real-world data on treatment indications and effectiveness are limited.

**Patients and Methods:** This analysis includes first-line *H. pylori* treatments from five German university centers participating in the European Registry on *H. pylori* Management (Hp-EuReg; 2013-2025), documented via AEG-REDCap. Indications were categorised by symptom profile, endoscopic findings, and GC risk. Eradication rates were assessed by modified intention-to-treat and compared across regimens using the  $\chi^2$  test.

**Results:** Among 448 patients (53% male, median age 55) included main indications were non-investigated dyspepsia (33%), dyspepsia with normal endoscopy (30%), and peptic ulcer disease (18%). GC prevention accounted for 5% of cases, including prior GC resection (0.9%), first-degree relatives of GC patients (2%), and high-risk screening (1.3%). Other indications included iron deficiency anaemia (4%), vitamin B12 deficiency (0.7%), and MALT lymphoma (0.2%). The most frequently prescribed first-line regimens were amoxicillin-clarithromycin triple therapy (54%) and bismuth-based quadruple therapy (BQT, 41%), administered as a three-in-one capsule containing metronidazole-tetracycline-bismuth. Both regimens achieved high eradication rates (98% vs. 97%) when administered for 10 days.

**Conclusions:** In Germany, most *H. pylori* eradications were symptom-driven, though a small but relevant proportion targeted GC prevention. Over the study period, both most commonly used first-line regimens were highly effective in real-world settings.

**Conflict of interest disclosure:**

M. Venerito: None. A. Kahraman: None. R. Rosania: None. A. Link: None. R. Vasapolli: None. A. Cano-Català: None. L. Moreira: None. P. Parra: None. O. Nyssen: None. F. Mégraud: None. C. O'Morain: None. J. Gisbert: None.

**P01.099.**

**THE ROLE OF VITAMIN C IN THE *HELICOBACTER PYLORI* DORMANT STATE**

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**Objective:** *Helicobacter pylori* shows a sophisticated adaptability and capability to persist by entering in dormant state. The aim of this study was to evaluate: (i) the *H. pylori* physiological changes from active to viable-but-non-culturable (VBNC) and persister (AP) states, defining times/conditions; (ii) the ability of VitaminC to interfere with dormancy generation/resuscitation.

**Materials and Methods:** Dormant states were induced in clinical MDR *H. pylori* by: nutrient starvation for VBNC generation: incubating in unenriched medium (Brucella Broth) or saline solution (SS); and for AP generation: incubating with 10xMIC amoxicillin (AMX). The bacterial cultures were monitored after 24, 48, 72h, 8-14 days by OD<sub>600</sub>, CFUs/mL, Live/Dead staining, and MTT viability test. Afterwards, VitC was added to *H. pylori* suspension before/after the dormant states' generation monitoring its effect after 24, 48, and 72h.

**Results:** VBNC state was generated after 8 days in SS, and the AP state in 10xMICAMX for 48h. Vitamin C reduced *H. pylori* entry into VBNC state. VitC delayed the entry in AP cells, decreasing viable coccal cells and increasing bacillary/U-shaped bacteria. Our results demonstrated the VitC ability to increase the *H. pylori* resuscitation (60%) from the VBNC state inducing the morphological transition from coccal to bacillary shapes in culturable cells. Moreover, VitC showed the ability to reduce the clustering of AP state, making bacteria more vulnerable to biocidal action. VitC reduced the dormant states, promoting resuscitation rate.

**Conclusions:** The antioxidant VitC could be a possible effective agent to add in conventional therapeutic schemes; the VitC pretreatment seems to favor the vegetative forms more susceptible to antibiotic treatments.

**Conflict of interest disclosure:**

M. Pinti: None. F. Diban: None. P. Di Fermo: None. S. Di Lodovico: None. E. Di Campli: None. S. D'Ercole: None. L. Cellini: None. M. Di Giulio: None.

P01.100.

**THE PREVALENCE OF HELICOBACTER SPP. INFECTION IN CURRENT JAPANESE CHOLECYSTIC BILE**

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**Objectives:** This study investigates whether *Helicobacter spp.*, particularly *H. pylori* (Hp), *H. hepaticus*, and *H. bilis*, are present in bile and aims to evaluate the latest prevalence of *Helicobacter spp.* infection in bile based on Hp infection status in the stomach.

**Patients and Methods:** The study was conducted on 30 consecutive patients who underwent cholecystectomy. Culture, *H. pylori* stool antigen test (HpSA), and nested PCR using specific primers (*Hp*—Hsp60, UreA; *H. hepaticus*—16S rRNA, cdt B; *H. bilis*—16S rRNA, cdt B) were performed using bile samples collected intraoperatively or immediately postoperatively. Each patient's Hp infection status in the stomach was assessed and they were classified into three groups: (1) Hp-current infected stomach, (2) Hp-past infected stomach, and (3) Hp-never infected stomach.

**Results:** *Helicobacter spp.* was not cultured from any samples. HpSA was positive in 16 patients (53%): 4 patients with Hp-current infected stomach (100%), 6 patients with Hp-past infected stomach (75%), and 6 patients with Hp-never infected patients (33.3%). PCR for the three species yielded multiple non-specific bands, with inconsistent positive results among primers. Therefore, PCR conditions were reviewed using a mixture of DNA extracted from ATCC strains and bile samples as a positive control, employing *H. pylori*-UreA, *H. hepaticus*-cdt B, and *H. bilis*-cdt B primers. Using this revised PCR method, all samples tested negative for the three species.

**Conclusions:** HpSA showed a high rate of positivity even in Hp-never infected stomach, suggesting possible false positives. PCR results did not reveal any positive cases, indicating that *H. pylori*, *H. hepaticus*, and *H. bilis* were not present in bile.

**Conflict of interest disclosure:**

Y. Fukuda: None. T. Sakamoto: None. Y. Yagi: None. K. Nakamichi: None. F. Ishii: None. S. Matsubayashi: None. T. Noritomi: None.

P01.102.

**THE STRUCTURAL EFFECTS OF THE TLR4 RECEPTOR VARIANT RS4986790 ON THE GENETIC PREDISPOSITION TO HELICOBACTER PYLORI INFECTION**

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**Objective:** *Helicobacter pylori* (*H. pylori*) is a major risk factor for various gastropathies, including gastric cancer. The host's innate immune response is partly mediated by TLR4, which recognizes bacterial lipopolysaccharides. Polymorphisms in the TLR4 gene may induce structural changes in the protein, potentially affecting its function and inflammatory response. Susceptibility to *H. pylori* infection may be associated with host genetic polymorphisms. This study aimed to evaluate, *in silico*, the effects of the rs4986790 variant on the structure and function of the TLR4 receptor.

**Material and Methods:** The three-dimensional structure of the protein was modeled using SWISS-MODEL, and structural quality was assessed with SAVES. The DynaMut tool was used to evaluate the impact of the mutation on protein stability. The interaction between TLR4 and the MD-2 molecule was analyzed through molecular docking using HADDOCK, and the dynamic effects of the mutation were investigated *via* molecular dynamics simulations using WebGro.

**Results:** The rs4986790 variant exhibited a destabilizing effect on the protein, altering intramolecular interactions, reducing affinity with the MD-2 molecule, and decreasing solvent accessibility. Molecular dynamics simulations indicated reduced flexibility and increased compactness in the mutant form.

**Conclusions:** Our findings suggest that the rs4986790 variant in TLR4 may impair protein function, weakening the innate immune response and facilitating the persistence of *H. pylori*. These results support the hypothesis that structural alterations induced by polymorphisms may contribute to increased infection susceptibility, highlighting the relevance of such variants as potential genetic risk markers.

**Conflict of interest disclosure:**

M.S. Barbosa: None. H.C.S. Dutra: None. D.G. Silva: None. R.S. Santos: None. L.T. Rasmussen: None.

**P01.103.**

**VIRULENT *H. PYLORI* DRIVES IMMUNE EVASION AND DNA REPAIR IMPAIRMENT IN HER2-POSITIVE N87 GASTRIC CANCER CELL LINE**

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**Objective:** The impact of *Helicobacter pylori* infection on trastuzumab (TRAS) efficacy in HER2-positive gastric cancer (GC) remains unclear, despite evidence that tumor microenvironment and host-pathogen interactions influence therapeutic response. This study investigated how *H. pylori* strains with high (HV-HP) or low (LV-HP) virulence affect GC cell behavior, particularly in the context of HER2 amplification and TRAS resistance.

**Materials and Methods:** We used the HER2-amplified NCI-N87 GC cell line and four non-HER2-amplified lines (AGS, SNU-1, SNU-16, SNU-5). TRAS-resistant N87 cells (N87R) were generated by exposing parental N87 cells (N87p) to increasing TRAS concentrations. N87p and N87R cells were infected with HV-HP or LV-HP and treated with epidermal growth factor (EGF), TRAS, or both. Infection was confirmed by confocal microscopy. Expression of Wnt/ $\beta$ -catenin signaling genes and HER2, PD-L1, and PD-L2 proteins was assessed by RT-qPCR and flow cytometry (FACS).

**Results:** HV-HP infection reduced MSH6 expression, suggesting impaired DNA repair, and upregulated PDCD1LG2, indicating enhanced immunosuppression. HV-HP increased PD-L2 levels specifically in HER2-amplified N87 cells, while TRAS resistance and EGF modulated PD-L1/PD-L2 expression. TRAS also induced CDH1/SNAI1 and TP53 expression, independent of infection.

**Conclusions:** Virulent *H. pylori* may promote aggressive features and immune evasion in HER2+ GC by impairing DNA repair and enhancing PD-L2-mediated immunosuppression. Conversely, PD-L chain modulation may offer opportunities for chemo-immunotherapy combinations. Further studies are needed to clarify these mechanisms and therapeutic implications.

**Conflict of interest disclosure:**

V. De Re: None. S. Zanussi: None. G. Brisotto: None. M. De Zorzi: None. O. Repetto: None. A. Steffan: None. M. Casarotto: None.

## 1. HELICOBACTER - ROUND 06

### P01.013.

#### DUODENOGASTRIC REFLUX AND INFECTIOUS GASTRITIS

##### A. BARRIOS

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**Objective:** We have previously demonstrated that biliary gastritis fosters the growth of bacteria and fungi. This study aimed to measure bile acids in the stomach, resulting from duodenogastric reflux, and establishes their correlation with infectious processes in the gastric mucosa. Given the regulatory role of bile acids in bacterial growth, we explored the incidence of *H. pylori* and *Candida* on the gastric mucosa.

**Material and Methods:** The Heliforce<sup>®</sup> Carbon-13 breath test (Beijing Richen-Force Science & Technology Co., Ltd.) was used for *H. pylori* detection. Gastroscopy (esophagogastroduodenoscopy) was performed under propofol sedation, with an anesthesiologist and two nurses assisting. Gastric secretions were collected by aspirating gastric contents during the procedure. CHROMagar<sup>™</sup> *Candida* Plus, a selective chromogenic medium, was used for presumptive identification of *Candida* species, including *C. auris*. Swabs from skin, throat, ear, and vagina, as well as sputum, urine, and stool samples, were cultured in parallel with Sabouraud agar. Results were interpreted after 24-48 h of aerobic incubation at 30-37°C.

Bilitest was performed using Bonaldi's (1993) turbidimetric method:

- 100 µL of gastric fluid was mixed with 100 µL of sodium hydroxide;
- Incubated at 37°C for 10 minutes, then centrifuged;
- The supernatant was read by turbidometry.

Normal bile acid levels were defined as 50-100 µL/dL, based on pooled samples from healthy individuals.

**Results:** Among the patients evaluated, 13C-urea breath test (UBT) was positive in 12 cases. *Candida* species were isolated in 32 patients. Elevated bile acid levels (Bilitest >100 µL/dL) were observed in 34 patients, of whom 17 also showed *Candida* growth. Notably, 7 patients had concurrent Bilitest positivity, *Candida* growth, and a positive 13C UBT.

**Conclusions:** Bile acids present in the gastric contents regulate the growth of certain Bacteria and aid in the adhesion of other microorganisms such as *H. pylori* and *Candida* to the gastric mucosa, by precipitating the mucin of gastric mucus.

##### Conflict of interest disclosure:

A. Barrios: None.

### P01.014.

#### CLARITHROMYCIN-RESISTANT *HELICOBACTER PYLORI* IN AFRICA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Objective:** Clarithromycin-resistant *H. pylori* (CRHp) strains have become global priority pathogens in Africa. Therefore, this study aimed to conduct the first comprehensive systematic review and meta-analysis of CRHp in Africa.

**Materials and Method:** This investigation was conducted according to the guidelines of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA 2020). Literature search of electronic databases was performed using keywords.

**Results:** Sixty-five studies involving 5,313 *H. pylori* strains isolated over 26 years (1997-2022) from 23 African countries were included in this study. The samples from which CRHp was isolated included gastric biopsy (60/63; 95%), and stool (4/63; 6%). The pooled prevalence of CRHp in Africa was 27% (95% CI: 22, 33). There was a steady trend in the prevalence of CRHp isolated in Africa over the 26 years ( $R^2 = 0.0001$ ,  $p = 0.92$ , slope coefficient of  $-0.05x$ ). Ten types of 23S rRNA mutations (conferring clarithromycin resistance) were identified and included mainly A2143G (465 *H. pylori* strains out of 1178 tested) and A2142G (344 *H. pylori* strains out of 1,027).

**Conclusions:** To enhance the accuracy and validity of surveillance data for *H. pylori* in Africa, there is an urgent need for implementing standardized microbiological methods for resistance detection. The prevalence of CRHp reported in this study was very similar to the overall global prevalence and there is a need for more representative studies on CRHp in Africa. While waiting for this, the treatment of *H. pylori* infections must be based on the guidelines of the AHMSG first Lagos consensus.

**Conflict of interest disclosure:**

S.I. Smith: None. K.M. Dossouvi: None.

**P01.015.**

**EVALUATION OF A QUINTUPLE, 10-DAY BISMUTH-ENHANCED CONCOMITANT, THERAPY AS A FIRST-LINE REGIMEN FOR *HELICOBACTER PYLORI* ERADICATION: A PROSPECTIVE MULTICENTER PILOT STUDY**

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**Objective:** Non-bismuth quadruple "concomitant" therapy is the current first-line regimen for *Helicobacter pylori* (HP) eradication in Greece. Despite recent bismuth availability, the lack of tetracycline limits use of bismuth quadruple therapy. A bismuth-enhanced concomitant (quintuple) regimen could be an alternative but has not been previously evaluated.

**Patients and Methods:** In this prospective, open-label, multicenter pilot study, treatment-naïve patients with HP infection were diagnosed *via* histology and/or rapid urease test. Exclusion criteria included recent use of PPIs, antibiotics, NSAIDs, bismuth, serious comorbidities, prior gastrectomy, pregnancy/lactation, allergies to study drugs, or patient refusal. All patients received esomeprazole 40 mg BID, amoxicillin 1000 mg BID, clarithromycin 500 mg BID, metronidazole 500 mg BID, and bismuth subcitrate 240 mg BID for 10 days along with a specific 4-strain probiotic (*Lactobacillus acidophilus*, *Lactiplantibacillus plantarum*, *Bifidobacterium lactis*, *Saccharomyces boulardii*). Efficacy was assessed by intention-to-treat (ITT), per-protocol (PP), and modified ITT (mITT) analyses. Eradication was confirmed *via* negative histology or urea breath test  $\geq 8$  weeks post-treatment.

**Results:** Fifty-two patients were analyzed (mean age  $48.6 \pm 18.7$  years; 50% male; peptic ulcer disease: 7/52; non-ulcer dyspepsia: 29/52). Eradication rates: ITT 47/52 (90.4%, 95% CI: 79.4-95.8); PP 46/49 (93.9%, 95% CI: 83.5-97.9); mITT 47/51 (92.2%, 95% CI: 81.5-96.9). Adverse events occurred in 29.4% (15/51) of patients (mainly taste disturbances: 39.1%). No serious adverse events occurred. Compliance ( $>90\%$  drug intake) was excellent [49/51 (96.1%)].

**Conclusions:** The quintuple 10-day bismuth-enhanced concomitant regimen is highly effective (93.9% PP), safe, and well tolerated as a first-line treatment for HP eradication in Greece, even in settings of high antibiotic resistance without negatively affecting patient compliance.

**Conflict of interest disclosure:**

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P01.016.

COMPARISON OF 4 STOOL ANTIGEN TESTS FOR THE DETECTION OF *HELICOBACTER PYLORI*

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**Objective:** Stool antigen tests (SATs) are rapid and convenient assays for the detection of *Helicobacter pylori* infection. This study evaluates the analytical and qualitative performances of four SATs for *H. pylori* detection.

**Patients and Methods:** 150 frozen stool samples, including 46 positives, were analyzed at the Belgian National Reference Center for *H. pylori*. Four SATs were assessed: Rapydtest<sup>®</sup> (Apacor), VIRCLIA<sup>®</sup> MONOTEST (Vircell), K-Set<sup>®</sup> (Coris Bioconcept), and STANDARD F<sup>®</sup> (SD Biosensor), and compared to the reference method ELISA Premier<sup>®</sup> Platinum HpSA<sup>®</sup> PLUS. Sensitivity, specificity, predictive values, repeatability, reproducibility, and stability were determined. Operational features such as user-friendliness, turnaround time (TAT), automation, and integration into the laboratory information systems (LIS) were also evaluated.

**Results:** Rapydtest<sup>®</sup> and STANDARD F<sup>®</sup> demonstrated the highest sensitivity (98% and 96%) and excellent specificity (97% and 96%). VIRCLIA<sup>®</sup> showed good reproducibility (100%) but lower specificity (92%), with a higher false-positive rate. K-Set<sup>®</sup> exhibited high specificity (98%) but inadequate sensitivity (72%). All tests showed good repeatability; however, K-Set<sup>®</sup> had stability issues. VIRCLIA<sup>®</sup> and STANDARD F<sup>®</sup> provided automated readings and LIS integration but required specialized equipment. Rapydtest<sup>®</sup> and K-Set<sup>®</sup> had shorter TATs but required manual result interpretation.

**Conclusions:** Rapydtest<sup>®</sup> and STANDARD F<sup>®</sup> are user-friendly and reliable for routine use, offering strong and efficient performance. VIRCLIA<sup>®</sup> is suitable for high-throughput settings. K-Set<sup>®</sup> may be considered in low-resource contexts.

**Conflict of interest disclosure:**

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P01.017.

THE PREVALENCE OF DETECTION OF ANTIBODIES TO CAGA VIRULENCE FACTOR OF *H. PYLORI* IN PATIENTS WITH A POSITIVE RESULT FOR <sup>13</sup>C- UREASE BREATH TEST IN MOSCOW

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**Objective:** *H. pylori* infection causes chronic gastritis, peptic ulcer disease, gastric cancer and MALT lymphoma. The outcomes of *H. pylori* infection depend both on macroorganism and the characteristics of pathogen. *H. pylori* has different virulence factors that increase the risk of developing atrophic gastritis and gastric cancer, one of them is CagA antigen. The aim of the study was to analyze the prevalence of detection of total antibodies to CagA virulence factor of *H. pylori* in patients with a positive <sup>13</sup>C- urease breath test (<sup>13</sup>C- UBT) result in the Moscow.

**Patients and Methods:** 712 *H. pylori*-positive patients (208 men and 504 women) were examined in A.S. Loginov Moscow Clinical Scientific Center as part of the study on the prevalence of *H. pylori* in Moscow (Grant of the Moscow Center for Innovative Technologies in Healthcare, 0903-1/22). *H. pylori*-positive status was confirmed by <sup>13</sup>C-UBT (DOB value > 4.0%). The mean age of the patients was 47.90 ± 14.11 years. They underwent a serological study of total antibodies to CagA antigen of *H. pylori* («Vector-Best», Russia), normal level is < 0.41 conventional unit (c.u.).

**Results:** Antibodies to CagA virulence factor of *H. pylori* were detected in 419 patients among 712 *H. pylori*-positive patients (58.85%). The average level of total antibodies to CagA virulence factor was  $2.042 \pm 0.808$  c.u. The prevalence of antibodies to CagA was the same among men and women: 59.13% in men, 58.73% in women.

**Conclusions:** This study shows a high prevalence of detection of antibodies to CagA virulence factor of *H. pylori* (58.85%) in Moscow population.

**Conflict of interest disclosure:**

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**P01.018.**

**HELICOBACTER PYLORI INFECTION AND GASTRIC ATROPHIC CHANGE IN DRUG RELATED SMALL BOWEL BLEEDING**

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**Objectives:** The aim of this study was to investigate the frequency of *Helicobacter pylori* (*H. pylori*) infection and diffuse atrophic gastritis detected by upper gastrointestinal endoscopy before capsule endoscopy in patients with occult or obscure small bowel bleeding taking medications, such as nonsteroidal anti-inflammatory drugs (NSAIDs), aspirin, and anticoagulants.

**Materials and Methods:** The study subjects were patients who visited our hospital due to occult or obscure small bowel bleeding and underwent capsule endoscopy from January 2022 to January 2025. Those who underwent capsule endoscopy due to overt small bowel bleeding, Crohn's disease, small bowel cancer, concomitant cancer, hemodialysis or liver cirrhosis, Peutz-Jagher syndrome, and suspected colon diverticular bleeding were excluded. We compared drug-related and idiopathic small bowel bleeding patients.

**Results:** In patients with NSAIDs, aspirin, and anti-coagulants, the incidence of diffuse atrophic gastritis or *H. pylori* infection was statistically significant. The same results were seen in the results limited to patients with definite lesions in small intestine capsule endoscopy. The results were the same when limited to NSAIDs and aspirin excluding anti-coagulants. Among these, 17% were patients (17/ 99) who

started taking the drug within 1 month. In multivariate analysis, the risk was higher in older patients, those with diffuse gastritis, and those with concomitant use of proton pump inhibitor (PPI) or potassium competitive acid blocker (PCAB).

**Conclusions:** Elderly patients who require the use of NSAIDs or aspirin should be cautious when accompanied by chronic atrophic gastritis. In addition, care must be taken with the prescription of PPI or PCAB.

**Conflict of interest disclosure:**

N. Lim: None. W. Chung: None.

**P01.019.**

**TRENDS IN THE PRESCRIPTION OF ERADICATION TREATMENTS AND THEIR EFFECTIVENESS IN NAÏVE PATIENTS OVER 12 YEARS (2013-2024) IN EUROPE: DATA FROM THE EUROPEAN REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (HP-EUREG)**

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**Objective:** The infection by *Helicobacter pylori* can be successfully treated and eradicated by adhering to consensus guidelines, which must be continually assessed for clinical applicability.

**Materials and Methods:** Multicenter, prospective registry evaluating the decisions and outcomes of *H. pylori* management by European gastroenterologists (Hp-EuReg, Hp-WorldReg's partner). Data were registered at AEG-REDCap e-CRF until December 2024. Modified intention-to-treat (mITT) and time trend analyses were performed.

**Results:** Overall, 64,084 (84%) first-line empirical prescriptions were analyzed. The total number of different therapeutic regimens prescribed exceeded 100. Triple therapy prescriptions decreased from 58% during 2013/15 to 34% in 2022/24; likewise, non-bismuth concomitant therapy use decreased from 23% in 2013/15 to 14% in 2022/24; while three-in-one single-capsule increased from 0.3% in

2013/2015 to 20% in 2022/24. An increase in the average duration of treatments (from 9.9 to 12.7 days) in 2013-2024 was identified, as well as in the use of standard/high-dose of PPIs (increasing from 36% to 61%) in 2013-2024. Over 12 years of evolution, an overall improvement of  $\approx 10\%$  in first-line effectiveness was observed, increasing from 86% to 93%, both globally and across geographic regions (Table 1). **Conclusions:** European gastroenterological practice is continuously adapting to the latest published evidence and recommendations—reducing the use of triple therapies while increasing both treatment duration and PPI dosage—leading to a progressive improvement in overall effectiveness. These changes have remained consistent in recent years.

**TABLE 1. PRESCRIPTIONS AND EFFECTIVENESS TRENDS OF FIRST-LINE EMPIRICAL TREATMENTS IN EUROPE IN THE PERIOD 2013-2024.**

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>Treatment</b>												
Quadruple-C+A+B	1.9%	2.6%	6.5%	19%	12%	25%	13%	14%	16%	14%	17%	17%
Single-capsule*	0.2%	0.2%	0.5%	14%	22%	17%	21%	19%	19%	21%	19%	20%
Quadruple-M+Tc+B	2%	1.8%	0.5%	0.2%	0.3%	0.6%	1.3%	1.3%	1.6%	3.7%	2.4%	2.8%
Concomitant-C+A+M/T	21%	21%	27%	21%	19%	8.5%	11%	13%	14%	13%	15%	14%
Sequential-C+A+M/T	16%	9.7%	7.4%	1.9%	7.8%	7.2%	5.8%	3.6%	3.6%	3.6%	2.4%	2.1%
Triple-A+L	2.2%	2.1%	3%	1.7%	0.6%	0.6%	1.1%	1.2%	1.2%	2.3%	3%	2%
Triple-A+M	3.4%	2.9%	1.5%	1.5%	1.3%	0.4%	1.6%	1%	1.3%	1.5%	1.6%	1.3%
Triple-C+M	3.2%	6.1%	8.1%	5.7%	1.3%	0.9%	1.2%	6.4%	4.1%	3.9%	2.7%	1.7%
Triple-C+A	46%	50%	40%	29%	30%	30%	36%	33%	33%	28%	25%	21%
<b>Therapy length</b>												
7 days	27%	28%	23%	17%	7.3%	2.1%	2.8%	3.4%	2.9%	8.8%	3%	2.1%
10 days	57%	55%	59%	48%	52%	47%	41%	39%	43%	43%	34%	31%
14 days	17%	18%	18%	36%	40%	51%	56%	58%	54%	48%	63%	67%
<b>PPI doses</b>												
Low (4.5 to 27 mg omeprazole equivalents b.i.d.)	64%	55%	44%	38%	44%	31%	35%	46%	43%	37%	42%	39%
Standard (32 to 40 mg omeprazole equivalents b.i.d.)	16%	24%	24%	23%	23%	37%	29%	24%	26%	35%	31%	28%
High (54 to 128 mg omeprazole equivalents b.i.d.)	20%	22%	31%	39%	33%	32%	37%	30%	31%	29%	27%	33%
<b>Overall effectiveness</b>												
Eradication rate (mITT)	86%	85%	86%	88%	88%	91%	89%	89%	91%	92%	92%	93%
<b>Effectiveness depending on geographical region</b>												
East	92%	79%	84%	83%	82%	91%	90%	93%	93%	91%	93%	91%
East-Centre	87%	85%	86%	85%	87%	89%	89%	93%	91%	92%	94%	95%
South-West	84%	86%	86%	90%	91%	91%	88%	85%	90%	93%	92%	95%
West-Centre	89%	92%	93%	94%	89%	92%	91%	89%	89%	94%	94%	94%
North	85%	82%	83%	88%	83%	77%	84%	83%	81%	83%	77%	79%

PPI: proton pump inhibitor; mITT: modified intention-to-treat; A – amoxicillin; C – clarithromycin; M – metronidazole; T – tinidazole; L – levofloxacin B; – bismuth salts; Tc – tetracycline; East – Ukraine, Serbia, Bulgaria, Turkey, Russia, Romania, Albania, North Macedonia, Bosnia and Herzegovina, Kosovo, Moldova, Montenegro; East-Centre – Croatia, Poland, Hungary, Latvia, Lithuania, Greece, Slovenia, Czech Rep, Azerbaijan, Slovakia, Malta, Armenia; South-West – Portugal, Spain; West-Centre – France, Austria, Belgium, Germany, Italy; North – The United Kingdom, Finland, The Netherlands, Ireland, Israel, Norway, Switzerland, Sweden, Denmark; \*Three-in-one single-capsule containing metronidazole, tetracycline and bismuth.

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P01.020.

**COMPARISON OF TAILORED THERAPY AND CONCOMITANT THERAPY:  
FOCUSING ON CLINICAL EFFICACY AND COST-EFFECTIVENESS**

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**Objective:** *Helicobacter pylori* (*H. pylori*) eradication rate using conventional triple therapy has decreased due to clarithromycin resistance. Concomitant therapy or tailored therapy based on dual priming oligonucleotide (DPO)-based multiplex polymerase chain reaction (PCR) is considered as alternative first-line eradication strategies. We aimed to evaluate the eradication rate and cost-effectiveness of concomitant and tailored therapy focusing on clinical efficacy of *H. pylori* eradication and cost-effectiveness.

**Patients and Methods:** Data from *H. pylori*-positive patients were collected between January 2021 and June 2023. The tailored therapy group underwent DPO-PCR testing. If DPO-PCR was positive, 7-day bismuth-containing quadruple regimen were given, and if negative, 14-day conventional triple regimen was prescribed. In concomitant therapy group, 14-day concomitant regimen was prescribed. The cost-effectiveness was evaluated according to the average cost per patient and the incremental cost-effectiveness ratio.

**Results:** A total of 200 patients were allocated to the concomitant therapy group and 100 patients to the tailored therapy group. The eradication rate of first-line regimen was marginally higher in tailored therapy group than concomitant therapy group (179/200, 89.5% vs. 96/100, 96.0%;  $p=0.055$ ). The average costs per patient for tailored therapy were ₩ 591562.56 (Korean won) and ₩ 573304.30 for the first-line and second-line treatments, respectively. Compared with concomitant therapy, the incremental cost-effectiveness ratios of tailored therapy were -₩ 31118.44 and -₩ 49376.70 per patient for the first-line and second-line treatments, respectively.

**Conclusions:** Tailored therapy using DPO-PCR shows tendency of higher eradication rate cost-effectiveness compared with concomitant therapy. Larger scale randomized trial may be necessary in the future.

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P01.021.

**EMPIRICAL SECOND-LINE TREATMENTS IN EUROPE: DATA FROM 9,000 CASES FROM  
THE EUROPEAN REGISTRY ON HELICOBACTER PYLORI MANAGEMENT (HP-EUREG)**

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**Objective:** After a first eradication attempt, a relevant proportion of patients fail to cure *Helicobacter pylori* infection. The aim of the study was to assess second-line empirical treatment effectiveness.

**Patients and Methods:** A prospective registry (Hp-EuReg, Hp-WorldReg's partner) systematically included infected adults in the AEG-REDCap e-CRF until January 2025. Modified intention-to-treat (mITT) and per-protocol (PP) analyses were conducted.

**Results:** Overall, 8,901 patients received a second-line empirical therapy, achieving 82% effectiveness (mITT and PP). Adherence was 96.5% and adverse events occurred in 19%, mostly mild. Table 1 shows the effectiveness of common second-line treatments, with only 14-day bismuth quadruple therapies (tetracycline-metronidazole-bismuth or clarithromycin-amoxicillin-bismuth) plus high-dose PPIs achieving over 90% success. After first-line clarithromycin therapy failure, second-line triple therapy with amoxicillin plus rifabutin or levofloxacin achieved 85% and 80% effectiveness, respectively. Additionally, bismuth quadruple therapy with tetracycline-metronidazole (single-capsule and classical format), clarithromycin-amoxicillin, and levofloxacin-amoxicillin achieved 87%, 84%, 88%, and 85% cure rates, respectively. Within the same subgroup but in patients receiving optimized therapy, certain regimens yielded higher cure rates: triple therapy with amoxicillin-levofloxacin reached 87%, non-bismuth concomitant therapy (amoxicillin-clarithromycin-metronidazole) 86%, and bismuth quadruple therapy with tetracycline-metronidazole (single-capsule and classical format) achieved 89%, while amoxicillin-metronidazole and clarithromycin-amoxicillin reached 91% and 92%, respectively.

**Conclusions:** In Europe, empirical second-line treatment effectiveness is generally suboptimal (<90%), but 14-day bismuth quadruple therapy (tetracycline-metronidazole or clarithromycin-amoxicillin) with high-dose PPIs achieved optimal results. Optimization of regimen selection, treatment duration, and PPI dosing is necessary after first-line therapy failure.

**TABLE 1. SECOND-LINE EMPIRICAL TREATMENT PRESCRIPTIONS AND EFFECTIVENESS BY TREATMENT SCHEME AND GEOGRAPHICAL REGION.**

Treatment	N	Use (%)	mITT, N (%)	(95% CI)	PP, N (%)	(95% CI)
Triple-A+L	2,100	24	1,853 (79)	(78-81)	1,831 (80)	(78-82)
Single-capsule*	1,850	21	1,721 (87)	(85-89)	1,684 (88)	(86-89)
Quadruple-A+L+B	1,271	14	1,022 (86)	(83-88)	1,002 (86)	(84-88)
Quadruple-C+A+M	553	6.2	527 (81)	(78-85)	514 (82)	(79-86)
Quadruple-M+Tc+B	480	5.4	426 (84)**	(80-88)	407 (86)	(82-89)
Triple-C+A	436	4.9	344 (74)	(69-79)	338 (74)	(69-79)
Quadruple-C+A+B	390	4.4	267 (89)**	(85-93)	257 (89)	(86-93)
Triple-A+R	218	2.4	195 (82)	(76-87)	193 (82)	(76-88)
Triple-A+M	204	2.3	178 (57)	(50-65)	177 (58)	(50-65)
Other	1,229	14	NA	NA	NA	NA
Overall	8,731	100	7,601 (82)	(81-83)	7,451 (82)	(81-83)
Overall (optimised conditions)	1,913	22	1,641 (87)	(85-89)	1,604 (87)	(86-89)
East	1,404	16	1,147 (83)	(81-86)	1,111 (84)	(81-86)
East-Centre	1,645	18	1,158 (85)	(83-87)	1,145 (85)	(83-87)
South-West	4,046	45	3,834 (81)	(80-83)	3,756 (82)	(81-83)
West-Centre	1,163	13	1,043 (84)	(82-86)	1,028 (84)	(82-87)
North	643	7.2	566 (70)	(66-74)	548 (72)	(68-75)
Total	8,901	100	7,748 (82)	(81-83)	7,588 (82)	(81-83)

95% CI – confidence interval; mITT: modified intention-to-treat; PP: per-protocol, N: total number of patients analysed; C – clarithromycin; M – metronidazole; A – amoxicillin; L – levofloxacin; B – bismuth salts; Tc – tetracycline; R – rifabutin; Other – Other second-line empirical treatments with less than 150 patients treated in each category; East – Ukraine, Serbia, Bulgaria, Turkey, Russia, Romania, Albania, North Macedonia, Bosnia and Herzegovina, Kosovo, Moldova, Montenegro; East-Centre – Croatia, Poland, Hungary, Latvia, Lithuania, Greece, Slovenia, Czech Rep, Azerbaijan, Slovakia, Malta, Armenia; South-West – Portugal, Spain; West-Centre – France, Austria, Belgium, Germany, Italy; North – The United Kingdom, Finland, The Netherlands, Ireland, Israel, Norway, Switzerland, Sweden, Denmark; \*three-in-one single-capsule containing tetracycline, metronidazole and bismuth; \*\*achieved over 90% effectiveness when optimised (high-dose PPIs and 14-days).

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P01.022.

### EFFECTIVENESS AND SAFETY OF SINGLE-CAPSULE BISMUTH QUADRUPLE THERAPY IN 12,500 PATIENTS FROM THE EUROPEAN REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (HP-EUREG)

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**Objective:** The use of the three-in-one single-capsule formulation of bismuth quadruple therapy (PPI, bismuth, tetracycline, and metronidazole), introduced several years ago, has become increasingly widespread in Europe. However, the experience with this regimen should be analyzed in depth. The aim of the study was to evaluate the effectiveness and safety of the three-in-one single-capsule in the European Registry on *Helicobacter pylori* management (Hp-EuReg).

**Patients and Methods:** Multicenter, prospective registry (Hp-EuReg, Hp-WorldReg's partner) evaluating infected adult patients treated with 10-day single-capsule according to data sheet (3 capsules/6 h) or alternative three times a day (4 capsules/8 h) prescriptions and registered at AEG-REDCap e-CRF until December 2024. Modified intention-to-treat (mITT) and per-protocol (PP) analyses were performed.

**Results:** Overall, 12,519 (16%) patients received single-capsule bismuth-quadruple therapy, achieving 92% eradication rate based both on the mITT and PP analyses. In first-line treatment, effectiveness (mITT) reached 93%, decreasing to 87% in the second-line and to 83% in subsequent lines (3<sup>rd</sup> to 6<sup>th</sup>) (Table 1). Compliance was reported in 97% of cases, and was the factor most closely associated with the effectiveness. Adverse events (21%) were generally mild and transient; with 0.1% of patients reporting serious adverse events, leading to the discontinuation of treatment in 1.7% of patients.

**Conclusions:** The 10-day treatment with single-capsule bismuth-quadruple therapy achieves *H. pylori* eradication in approximately 90% of patients (mITT) in real-world clinical practice, both as a first-line and rescue treatment, with a favorable safety profile.

**TABLE 1. THREE-IN-ONE SINGLE-CAPSULE EFFECTIVENESS, COMPLIANCE AND SAFETY IN THE FIRST-LINE AND RESCUE TREATMENT LINES.**

	Use, N (%)	mITT, N (%)	95% CI	PP, N (%)	95% CI	Compliance, N (%)	95% CI	AEs, N (%)	95% CI
Overall	12,519 (16*)	11,833 (92)	(91-92)	11,627 (92)	(92-93)	12,198 (97%)	(97-97)	12,213 (21%)	(20-22)
1 <sup>st</sup> line (naïve)	9,958 (80)	9,449 (93)	(93-94)	9,299 (94)	(93-94)	9,707 (97%)	(97-98)	9,719 (20%)	(19-21)
2 <sup>nd</sup> line	1,850 (15)	1,721 (87)	(85-89)	1,684 (88)	(86-89)	1,799 (96%)	(95-97)	1,803 (22%)	(20-24)
3 <sup>rd</sup> to 6 <sup>th</sup> line	710 (5.7)	662 (83)	(80-86)	643 (84)	(81-87)	692 (95%)	(93-96)	691 (29%)	(25-32)

\*Of the total of treatments included in the Hp-EuReg up to January 2025 (i.e., N= 77,954); mITT: modified intention-to-treat; PP: per-protocol; N: total number of patients analysed; CI: confidence interval; AEs: adverse events.

**Conflict of interest disclosure:**

O.P. Nyssen: Other; Significant; Mayoly, Allergan/Abbvie, Richen, Juvisé and Biocodex. Á. Pérez-Aísa: None. J. Tejedor-Tejada: None. S. J. Martínez-Domínguez: None. A.J. Lucendo: None. M. Perona: None. Ó. Núñez: None. A. G. Gravina: None. M.S. Marcos: None. A. Moreno Loro: None. J.M. Huguet: None. A. Gasbarrini: None. R. Pajares Villarroja: None. M. Sánchez Alonso: None. A. Cano-Català: None. L. Moreira: None. P. Parra: None. F. Mégraud: None. C. O'Morain: None. J.P. Gisbert: Other; Significant; Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé and Biocodex.

## 1. HELICOBACTER - ROUND 07

### P01.034.

#### XENOPHAGY FOUND IN HUMAN AND MOUSE *HELICOBACTER SUIS* INFECTED GASTRIC PARIETAL CELL IS CLOSELY RELATED TO MITOPHAGY

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**Objective:** During *Helicobacter suis* (Hs) infection in mice, our electron microscopic investigations revealed bacilli not only in the gastric lumen, but in intracellular canaliculi of the parietal cells. In addition, large dense bodies were richly distributed in the parietal cell cytoplasm. Therefore, in this study, we aimed at characterizing the peculiar structure within the parietal cells in the Hs-infected mouse and Hs-positive human gastric mucosa by PCR analysis, in comparison with Hs-uninfected mice and Hp-infected cases.

**Materials and Methods:** We characterized the dense bodies in the parietal cells by immunohistochemistry using autophagy 5 (ATG5) antibody and acid phosphatase (ACP) antibody for autolysosome labelling. To clarify the relation of these changes to the mitochondria, Mito-ID Red dye was used for counterstaining. In addition, electron microscopic observation was performed using the ruthenium red en bloc staining.

**Results:** In the toluidine-blue stained Epon embedded sections, large dense bodies were found in the cytoplasm of the parietal cells in the Hs-infected mice and Hs-positive cases but not in the Hp-infected cases. By electron microscopy, some of these changes were found to be coincided with the mixture of the damaged mitochondria and Hs-related autophagic vacuoles. By the immunohistochemistry using anti-Hs, anti-ATG5 and ACP antibodies with Mito-ID Red, positive autophagic reaction was simultaneously found with Hs and mitochondria, while this reaction was not found in the Hs-infected mice and Hp-positive cases.

**Conclusions:** Hs-infected human and mouse parietal cell damage was shown to be related to mitophagy as well as xenophagy, which is one of the major differences in the pathogenicity between Hs and Hp.

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### P01.035.

#### ACCURATE MUCOSAL SAMPLING SITE FOR DIAGNOSIS OF *HELICOBACTER PYLORI* INFECTION WITH RAPID UREASE TEST: A PROSPECTIVE COHORT STUDY

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**Objective:** Although histological evaluation is the gold standard for *Helicobacter pylori* diagnosis, the rapid urease test (RUT) is widely used due to its convenience. However, *H. pylori* distribution varies by gastric region, and optimal biopsy sites for RUT remain unclear.

**Patients and Method:** Between December 2021 and June 2023, 377 patients undergoing esophago-gastroduodenoscopy (EGD) were prospectively enrolled. RUT and *H. pylori* immunohistochemical (IHC) tests were performed at five gastric sites: antrum-lesser curvature (LC), antrum-greater curvature (GC), angle, corpus-LC, and corpus-GC. Diagnostic performance of RUT was assessed using sensitivity, specificity, predictive values, and  $\kappa$  coefficient.

**Results:** Among the 377 patients, 263 were *H. pylori*-positivity in IHC at one or more of the five gastric sites. Both RUT and IHC testing showed higher positivity at the GC than the LC in both the antrum and corpus. The corpus-GC demonstrated the highest diagnostic performance (sensitivity 83.6%, specificity 78.0%). Accuracy improved with multi-site RUT, with the combination of the angle and corpus-GC

yielding the highest agreement ( $\kappa = 0.6000$ ). In closed-type atrophy, the combination of antrum-LC and corpus-GC showed the best performance ( $\kappa = 0.8519$ ), while in open-type atrophy, the angle and corpus-GC combination showed highest agreement ( $\kappa = 0.5844$ ).

**Conclusions:** The diagnostic performance of RUT varies by gastric site. The corpus-GC is the most reliable single-site for RUT. Combining multiple sites, especially combination of angle and corpus-GC can enhance diagnostic accuracy.

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**P01.036.**

**EFFICACY OF 10-DAY BISMUTH-BASED QUADRUPLE THERAPY FOR *H. PYLORI* IN A EUROPEAN SCREENING PILOT: INTERIM RESULTS OF THE IRISH EXPERIENCE**

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**Objective:** The TOwards GAstic Cancer Screening Implementation (TOGAS) project is evaluating screening strategies for gastric cancer in Europe, including a 'screen and treat' approach for *Helicobacter pylori* (*H. pylori*). Effective treatment is critical to the success of such programs, especially amid rising antimicrobial resistance. This interim analysis from the Irish arm of the TOGAS study assesses the effectiveness of a 10-day treatment using single-capsule bismuth-based quadruple therapy (PYLERA®) with high-dose esomeprazole in a population screening setting.

**Methods:** 3,030 individuals aged 30-34 years were invited to undergo screening for *H. pylori* through their general practitioner or workplace in the period January 24-March 25. Those who tested positive on both serology (BIOHIT *H. pylori* IgG antibody) and 13-C urea breath test (IR Force 200, Richen Medical) were offered treatment. Data on treatment adherence, side effects, and eradication were collected.

**Results:** 464 were enrolled, 48% (n=223) were male. 11% (n=50) were *H. pylori* positive on both serology and <sup>13</sup>C UBT; 96% (n=48) accepted treatment, with two excluded due to pregnancy. Among those treated (n=46), 96% reported >90% adherence. Side effects occurred in 24%, primarily mild to moderate and gastrointestinal, with 6% discontinuing treatment. No serious adverse events were observed. Follow-up testing was completed in 80% (n=37); eradication was achieved in 97% (per-protocol) and 89% (intention-to-treat) groups. Non-compliance due to side effects was the main cause of treatment failure.

**Conclusions:** This interim data demonstrates high efficacy and tolerability of PYLERA® with high-dose PPI as first-line therapy, supporting its potential role in population-level *H. pylori* screening and treatment programs in Western Europe.

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## P01.037.

**FACTORS ASSOCIATED WITH THE LACK OF FOLLOW-UP IN *HELICOBACTER PYLORI* ERADICATION TREATMENT: RESULTS FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)**

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**Objective:** The Maastricht VI/Florence Consensus recommends eradication of all *Helicobacter pylori* (*Hp*) infections, yet retreatment strategies remain variable. This study investigates reasons and factors for not retreating after eradication failure.

**Patients and Methods:** Multicenter, prospective registry evaluating decisions and outcomes of *H. pylori* management by European gastroenterologists (Hp-EuReg). Patients with eradication failure registered in AEG-REDCap between 2013-2024 were included and classified into 2 groups: those receiving retreatment and those who did not. Reasons for no retreatment were categorized as medical or patient-related. Multivariate logistic regression identified factors linked to absence of retreatment for each perspective, using the retreatment group as the reference.

**Results:** Among 6,904 patients, 950 (14%) were not retreated after failure: 41% due to medical decisions, 50% due to patient decisions. Frequent reasons for no retreatment included prior poor tolerance or non-compliance, unclear indication, and multiple eradication attempts. Medically, lack of retreatment was associated with age  $\geq 71$  years, previous non-compliance, number of previous attempts and prior treatment discontinuation due to adverse events. From the patient perspective, associated factors included male sex, two to four previous attempts, and previous non-compliance.

**Conclusions:** Over 10% of European patients are not retreated after *Hp* eradication failure. Barriers include advanced age, a history of poor adherence, and multiple prior eradication failures. The decision to avoid retreatment was often patient-driven, although medical reasons were also relevant, highlighting the need for shared decision-making and improved patient education.

**TABLE 1. FACTORS ASSOCIATED WITH THE LACK OF *H. PYLORI* RETREATMENT AFTER A THERAPEUTIC FAILURE - MULTIVARIATE ANALYSIS.**

Variables	Retreat- ment	No retreatment - Overall			No retreatment - Medical perspective			No retreatment - Patient perspective		
	N = 5,954	N = 950	p-value	OR (95% CI)	N = 393	p-value	OR (95% CI)	N = 474	p-value	OR (95% CI)
<b>Sex</b>										
Male-Female	2,100 (35.3%) 3,850 (64.7%)	386 (40.6%) 564 (59.4%)	0.000	1.30 (1.12-1.50)	147 (37.4%) 246 (62.6%)	0.116		206 (43.5%)	0.004	1.34 (1.10-1.63)
<b>Age</b>										
18-70 ≥ 71	5,455 (91.6%) 475 (7.9%)	851 (89.5%) 96 (10.1%)	0.015	1.35 (1.06-1.72)	350 (89.1%) 40 (10.2%)	0.028	1.49 (1.04-2.13)	430 (90.7%) 44 (9.3%)	0.282	
<b>Number of previous eradication attempts</b>										
One	1,054 (17.7%)	181 (19.1%)	0.000	1.57 (1.30-1.89)	82 (20.9%)	0.000	2.07 (1.57-2.73)	82 (17.3%)	0.109	
Two	334 (5.6%)	105 (11.1%)	0.000	2.82 (2.21-3.61)	61 (15.5%)	0.000	4.89 (3.54-6.74)	26 (5.5%)	0.006	1.69 (1.16-2.44)
Three	115 (1.9%)	63 (6.6%)	0.000	5.05 (3.63-7.03)	39 (9.9%)	0.000	9.25 (6.15-13.93)	21 (4.4%)	0.000	2.91 (1.78-4.76)
Four	42 (0.7%)	27 (2.8%)	0.000	6.00 (3.61-9.96)	12 (3.1%)	0.000	7.84 (3.96-15.53)	10 (2.1%)	0.000	3.60 (1.75-7.41)
Five	28 (0.5%)	13 (1.4%)	0.000	4.04 (2.04-8.02)	5 (1.3%)	0.002	4.73 (1.75-12.77)	5 (1.1%)	0.073	
<b>Treatment compliance*</b>	5,647 (94.8%)	739 (77.8%)	0.000	6.07 (4.97-7.41)	303 (77.1%)	0.000	4.27 (2.64-6.93)	358 (75.5%)	0.000	10.04 (7.37-13.68)
<b>Interruption due to AE</b>	183 (3.1%)	109 (11.5%)	0.053		68 (17.3%)	0.010	2.06	39 (8.2%)	0.000	0.34

**Conflict of interest disclosure:**

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**P01.038.****POPULATION-BASED SCREENING FOR *HELICOBACTER PYLORI* IN WESTERN EUROPE: INTERIM RESULTS OF THE IRISH EXPERIENCE**

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**Objective:** Europe's Beating Cancer Plan identified the need for a gastric cancer screening strategy. In response, the TOGAS (TOwards GAstric cancer Screening) consortium was formed to assess prevention methods. This pilot study evaluated the feasibility of screening asymptomatic 30-34-year-olds for *Helicobacter pylori* (*H. pylori*) and assessed response rates, participation rates, prevalence of the infection,

treatment uptake, and eradication success.

**Patients and Methods:** Between January 2024 and March 2025, 3,030 individuals were invited for screening *via* their general practitioner or workplace-based screening program. Exclusions included prior *H. pylori* treatment or gastrectomy. Participants with positive serology (BIOHIT *H. pylori* IgG antibody titer >30 IU/ml) were offered confirmatory 13-C urea breath testing (Richen IR Force 200). Those with dual positivity were offered treatment with 10-day bismuth-based quadruple therapy (PYLERA) plus high-dose esomeprazole. Eradication was assessed  $\geq 6$  weeks post-treatment.

**Results:** 3,030 invites were distributed (80% GP practices). 20% (n=604) of recipients expressed interest in participating. 5% (n=31) were excluded and 18% (n=109) refused or ceased responding. 464 consented to screening (48% male; median age 32). Seropositivity was 15% (n=75), with 66% (50/73) confirmed positive on 13-C UBT. The overall positivity rate was 11%. Of those, 96% (48/50) consented to treatment (two excluded due to pregnancy). Adherence was >90% in 96% of treated participants. Eradication rates were 97% in the per-protocol and 89% in the intention-to-treat group. Mild-moderate side effects were reported in 24%; 6% discontinued treatment as a result. Four participants required second-line therapy; one failed.

**Conclusions:** Population-based *H. pylori* screening in Ireland is feasible, with high treatment uptake and efficacy. While initial response rates were modest, they align with early trends in other screening programs. With increased public awareness, higher participation is anticipated.

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**P01.039.**

**THE INFLUENCE OF *HELICOBACTER PYLORI* BACTERIA ON THE FUNCTIONAL ACTIVITY OF PHAGOCYtic CELLS WITH GASTROINTESTINAL TRACT PATHOLOGY**

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**Objective:** To determine the effect of *Helicobacter pylori* bacteria on the intensity of formation of active forms of oxygen by blood phagocytes in gastrointestinal pathology.

**Patients and Methods:** The objects of the study were blood phagocytes of 44 people, including 22 people with *H. pylori*-associated erosive and ulcerative gastrointestinal tract lesions aged 11 to 18 years (experimental group) and 22 people of the same age (control group); strains of *Helicobacter pylori* bacteria as an ROS inducer. The bacteria were cultured from gastric biopsy material on Pylori Agar nutrient medium (BioMerieux, France) with conditions for microaerophiles. The functional activity of phagocytes was measured by chemiluminescence and flow cytometry using monoclonal antibodies (BeckmanCoulter, USA) labeled with FITC (fluorescein isothiocyanate) in the FITC/CD14-PE/CD45-PC7/CD16-PC5 panel. Statistical analysis was performed using the Statistica 10.0 software package (StatSoftInc., 2020).

**Results:** In the experimental group, in response to *H. pylori* bacteria, a decrease in the total fraction of phagocytes was revealed with an increase in the populations of neutrophils and eosinophils ( $p < 0.001$ ); a decrease in monocytes (CD14+CD16+) was noted with an increase in the total population of monocytes relative to the control. The chemiluminescent activity of neutrophils decreased (area of spontaneous and induced by *H. pylori* suspension in the luminol-dependent process). In the lucigenin-dependent reaction, the intensity and area of the spontaneous reaction and induced by *H. pylori* suspension decreased.

**Conclusions:** The experimental group showed a decrease in the functional activity of blood phagocytes as a result of increased antigen stimulation in the form of *H. pylori* bacteria.

**Conflict of interest disclosure:**

O. Kolenchukova: None.

## P01.040.

**TARGETED VS. POPULATION-BASED SCREENING FOR *HELICOBACTER PYLORI*: INTERIM RESULTS OF THE IRISH EXPERIENCE**C. DEANE<sup>1,2,3</sup>, A. MCKIERNAN<sup>1</sup>, O. KELLY<sup>2,3</sup>, C. O'MORAIN<sup>1,4</sup><sup>1</sup>Beacon Hospital Research Institute, Dublin, Ireland, <sup>2</sup>Connolly Hospital, Dublin, Ireland, <sup>3</sup>Royal College of Surgeons, Ireland, Dublin, Ireland, <sup>4</sup>Trinity College Dublin, Dublin, Ireland.

**Objective:** The TOGAS consortium (TOwards GAstic cancer Screening) aims to evaluate gastric cancer screening strategies. Eradicating *Helicobacter pylori* (*H. pylori*) is central to this effort. Higher infection rates are typically encountered in males, smokers, and those of lower socioeconomic status—groups less likely to engage with preventive health care. The aim of the study was to assess whether targeted screening through high-risk occupational settings improves participation and outcomes vs. general practice-based screening.

**Patients and Methods:** This prospective study (Jan 2024-Mar 2025) invited individuals aged 30-34 through general practices (GP group, GPG) or occupational programs (targeted group, TG): Irish Defence Forces and Construction Workers Health Trust. Participants underwent serologic screening (BIO-HIT IgG); positives received confirmatory 13-C urea breath testing (Richen IR Force 200). Confirmed cases were treated with 10-day PYLERA (Metronidazole/Tetracycline/Bismuth subcitrate) + Esomeprazole. Eradication was confirmed ≥6 weeks post-treatment.

**Results:** 3,030 individuals were invited for screening: 2,824 in the GPG, 206 in the TG. Demographics and risk factors of each group are shown in Table 1. Invitation response and participation rates were significantly higher in the TG vs. the GPG (31% vs. 14%;  $p < 0.001$ , 30% vs. 14%,  $p < 0.00$ , respectively). Seroprevalence was similar: TG 18%, GPG 19% ( $p < 0.70$ ). Confirmed infection (serology + 13-C UBT positive) was 10% (TG) vs. 14% (GPG,  $p = 0.47$ ). Treatment adherence was high in both groups (TG 100%, GPG 90%). Among those who completed post-treatment testing ( $n = 37$ ), eradication was successful in all TG cases (2/2) and 89% in the GPG (31/35).

**Conclusions:** Targeted occupational screening yielded higher engagement than general practice-based approaches. This strategy may be more effective and resource-efficient for *H. pylori* detection in lower-risk European populations.

TABLE 1. BASIC DEMOGRAPHICS BY GROUP.

	Targeted group	General population
<b>Gender, male</b>	97%	33%
<b>Median age, years</b>	31	32
<b>Smoking status</b>		
- Current/previous	41% (24)	34% (137)
- Non-smoker	59% (34)	66% (266)
<b>Socioeconomic status (self-rated)</b>		
- Higher	69% (40/58)	85% (337/397)
- Middle	22% (13/58)	11% (42/397)
- Lower	0	0% (2/397)
- Prefer not to answer	9% (5/58)	4% (16/397)
<b>Family history of <i>H. pylori</i> infection</b>	3% (2)	9% (36)

**Conflict of interest disclosure:**

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## P01.041.

**COMPARISON OF ERADICATION RATE OF *HELICOBACTER PYLORI* BETWEEN HEMODIALYSIS AND NON-HEMODIALYSIS PATIENTS**

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**Objective:** Currently, there is no clear knowledge of the effectiveness of the treatment of *Helicobacter pylori* (HP) infections in patients who undergo hemodialysis. This study aimed to compare the eradication rate of HP between hemodialysis and non-hemodialysis patients.

**Patients and Methods:** Patients who were treated with HP eradication during hemodialysis at tertiary hospital between January and December 2018 were enrolled, and their eradication rate were evaluated. Non-hemodialysis patients who were treated with HP eradication during the same period were randomly selected with a ratio of 1:2 as a control group.

**Results:** 24 patients who underwent hemodialysis were treated with HP eradication and were evaluated for successful eradication. Out of the 24 patients, 20 patients showed successful HP eradication in the first line treatment and the remaining 4 patients showed successful eradication in the second line treatment. 11 out of the 48 patients who did not undergo hemodialysis failed to show successful eradication in the first line treatment and received the second line treatment. 6 of the remaining 11 patients showed successful eradication in the second line treatment. There were no statistically significant differences between hemodialysis patients and normal patients.

**Conclusions:** The success rate of HP eradication in hemodialysis patients was not different from non-hemodialysis patients.

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## P01.042.

**7-DAY VS. 14-DAY BISMUTH QUADRUPLE THERAPY AS SECOND-LINE TREATMENT FOR *HELICOBACTER PYLORI*: RESULTS FROM THE K-CREATE STUDY**

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**Objective:** Salvage therapy for *Helicobacter pylori* (*H. pylori*) remains a significant challenge. Recent guidelines recommend bismuth quadruple therapy (BQT) as a second-line treatment. However, the optimal duration of BQT remains controversial. The aim of this study aimed to compare the efficacy of 7-day vs. 14-day BQT following the failure of clarithromycin-based triple therapy. We also evaluated the effectiveness of levofloxacin triple therapy after BQT failure.

**Patients and Methods:** A nationwide, multicenter, double-blind, placebo-controlled randomized trial was conducted. Participants were randomized to receive either a 7-day or a 14-day BQT regimen. The primary outcome was the eradication rate, assessed using <sup>13</sup>C-urea breath test (UBT) at least four weeks after therapy completion. Compliance and adverse events were also monitored.

**Results:** Among 105 randomized patients, the intention-to-treat eradication rates were 76.4% (42/55) for the 7-day BQT and 84.0% (42/50) for the 14-day BQT ( $p=0.39$ ). The per-protocol eradication rates were 78.9% (41/52) and 85.4% (41/48), respectively. The eradication rate for levofloxacin triple therapy was 58.8%. Adverse events were similar across groups, with nausea being the most common. Compliance rates were also similar between the two groups.

**Conclusions:** A 7-day BQT regimen is non-inferior to a 14-day regimen in terms of eradication efficacy in patients with previous treatment failures. Given its lower pill burden and comparable effectiveness, the 7-day regimen may be preferred in clinical practice. Levofloxacin-based triple therapy of 10-day was ineffective as salvage therapy after failure of BQT. Further research is necessary to optimize second-line therapies and to assess the impact of antimicrobial resistance on treatment outcomes.

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**P01.043.**

**HELICOBACTER PYLORI ERADICATION PRESCRIPTIONS IN PRIMARY CARE: INSIGHTS FROM OVER 200,000 PATIENTS IN A NATIONAL REAL-WORLD COHORT**

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**Objective:** *H. pylori* is a common infection causing chronic gastritis, peptic ulcers, and gastric cancer, primarily managed in Primary Care. Assessing real-world practices and guideline adherence is crucial for treatment optimization. The aim of the study was to assess current *H. pylori* management strategies in Primary Care using data from BIFAP, a Spanish healthcare database of Primary Care practices.

**Patients and Methods:** Patients aged  $\geq 18$  with recorded *H. pylori* infection (2003-2023) and treatment prescriptions were included. Infection cases were identified using ICD-9/10 and SNOMED CT codes, and treatment patterns were based on Spanish and European guidelines. First-line treatment prescriptions were compared between Primary (BIFAP) and Specialized Care (European Registry, Hp-EuReg).

**Results:** A total of 211,972 *H. pylori*-infected subjects were identified. The most frequent first-line treatments were: proton pump inhibitor (PPI) plus a single-capsule containing bismuth-tetracycline-metronidazole (PPI+ScBQT), with 36% of cases; PPI+clarithromycin-amoxicillin (PPI+C+A), with 30%; and PPI+clarithromycin-amoxicillin-metronidazole (PPI+C+A+M), with 26%. PPI+ScBQT was the most common in patients aged 18-64 and those with obesity, chronic kidney disease, or smoking history, while PPI+C+A was more common in those aged  $\geq 65$  or with peptic ulcers. Since 2013, PPI+C+A use by general practitioners and gastroenterologists decreased, though it remains above 10% in Primary Care. PPI+C+A+M increased since 2015, with higher use in the Specialized Care (40%) vs. Primary Care (30%). ScBQT is now the most prescribed regimen in both settings, accounting for  $\sim 60\%$  of prescriptions.

**Conclusions:** Primary Care *H. pylori* treatments are varied, with single-capsule bismuth quadruple therapy most prescribed. Guidelines are followed, but adoption is slower in Primary Care than in Gastroenterology.

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P01.044.

### LONG-TERM EFFECT OF MACROLIDE CONSUMPTION ON *HELICOBACTER PYLORI* ERADICATION TREATMENTS: DATA FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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**Objective:** Prior antibiotic use affects *H. pylori* resistance, but the impact of previous clarithromycin use on eradication success remains unclear. This study examined how population-level macrolide use impacts the effectiveness of first-line regimens in treatment-naïve patients.

**Patients and Methods:** A retrospective, observational, multicentre, ecological study was conducted using data from the European Registry on *H. pylori* Management (Hp-EuReg). Multivariate logistic regression assessed the effectiveness of modified intention-to-treat regimens. Variables included clarithromycin-based therapy, duration (7-14 days), proton pump inhibitor dose, compliance (>90%), and clarithromycin use (defined daily doses per 1,000 inhabitants/day from ESAC-Net). Hierarchical models matched macrolide consumption by year and country, evaluating interactions with first-line empirical treatments.

**Results:** The study analyzed 27,549 naïve patients from 23 countries, with macrolide use data from 2013-2022. Higher macrolide consumption within 0-8 years before treatment was linked to reduced eradication success, especially in the previous 4 years. Eradication rates declined from 93% to 82% when clarithromycin use occurred 2 years before treatment. Triple therapies with amoxicillin or metronidazole plus clarithromycin, and some bismuth-quadruple therapies, were less effective with higher macrolide use. Table 1 shows that delayed macrolide consumption (0-8 years) consistently reduced the effectiveness of clarithromycin-based triple therapies, with more variable effects on quadruple regimens.

**Conclusions:** Higher population-level macrolide consumption reduces the success of clarithromycin-based *H. pylori* eradication, with the effect diminishing after 5 years.

**TABLE 1. EFFECT ON TREATMENT EFFECTIVENESS OF THE INTERACTION BETWEEN *H. PYLORI* ERADICATION TREATMENTS AND MACROLIDE CONSUMPTION IN THE COMMUNITY THROUGHOUT THE FULL RANGE OF DELAYS BETWEEN MACROLIDE CONSUMPTION AND TREATMENT.**

	Years of delay									
	0	1	2	3	4	5	6	7	8	
Triple-CA: Macrolides	0.65	0.80			0.76	0.61	0.56	0.72	0.63	
Triple-CM: Macrolides	0.35	0.50	0.51	0.55		0.60	0.57			
Conco-CAT CAM: Macrolides			1.25	1.18						
Seq-CAT-CAM: Macrolides	0.78					1.18				
Quad-CAB: Macrolides		0.56	0.53			6.44		88,000	0.009	

The table displays significant (<0.05) odds ratios for interaction terms in macrolide-based treatments across delay cases. A: amoxicillin; B: bismuth; C: clarithromycin; M: metronidazole; T: tinidazole.

**Conflict of interest disclosure:**

O.P. Nyssen\*: Other; Significant; Mayoly, Allergan/Abbvie, Richen, Juvisé and Biocodex. G.J. Ortega\*: None. L. Jonaitis: None. Á. Pérez-Aísa: None. B. Tepes: None. A.J. Lucendo: None. J. Tejedor-Tejada: None. S.J. Martínez-Domínguez: None. J. Kupcinskis: None. M. Leja: None. M. Sánchez Alonso: None. C. Bravo-Pache: None. M. Montes: None. A. Cano-Català: None. P. Parra: None. L. Moreira: None. F. Mégraud: None. C. O'Morain: None. L. Bujanda\*\*: None. J.P. Gisbert\*\*: Other; Significant; Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé and Biocodex.

## 1. HELICOBACTER - ROUND 08

P01.056.

### IDENTIFICATION OF GENES RELATED TO PYROPTOSIS IN *HELICOBACTER PYLORI* INFECTION BASED ON BIOINFORMATICS ANALYSIS

**K. DAI**

Chongqing University Three Gorges Hospital, Chongqing, China.

**Objective:** *Helicobacter pylori* (*H. pylori*) infection affects >50% globally and is linked to gastritis, ulcers, and gastric cancer. However, its role in pyroptosis remains unclear. This study aimed to identify pyroptosis-related genes (PRGs) and their inflammatory mechanisms in *H. pylori* infection.

**Materials and Methods:** We analyzed *H. pylori*-infected gastric datasets (GSE60427, GSE74492) from GEO and 51 known PRGs. Differentially expressed PRGs (DEPRGs) were identified using GEO2R. Functional enrichment, PPI network (STRING/Cytoscape), and WGCNA were performed to pinpoint hub genes. External validation and immune infiltration analysis were conducted, followed by Western blot and IHC validation in gastric tissues.

**Results:** We identified 20 DEPRGs (15 up-, 5 downregulated), enriched in NLR signaling and inflammasome pathways. Five hub genes (*NLRP3*, *LCN2*, *IL2RG*, *IGF1R*, *IRS1*) showed significantly higher expression in *H. pylori*-infected tissues ( $*p < 0.05$ ) and correlated with CD8<sup>+</sup> T cells and macrophages. IHC confirmed their upregulated protein levels ( $*p < 0.05$ ).

**Conclusions:** Pyroptosis-related genes (e.g., *NLRP3*) may drive *H. pylori*-induced inflammation via immune cell infiltration, offering potential therapeutic targets.

#### Conflict of interest disclosure:

K. Dai: None.

P01.057.

### PROTEOMIC ANALYSIS AND TARGET GENE IDENTIFICATION OF EXOSOMES DERIVED FROM *HELICOBACTER PYLORI*-INFECTED GASTRIC EPITHELIAL CELL LINES

**D. JOO<sup>1</sup>, G. KIM<sup>1</sup>, M. LEE<sup>1</sup>, B. LEE<sup>1</sup>, S. SUL<sup>2</sup>**

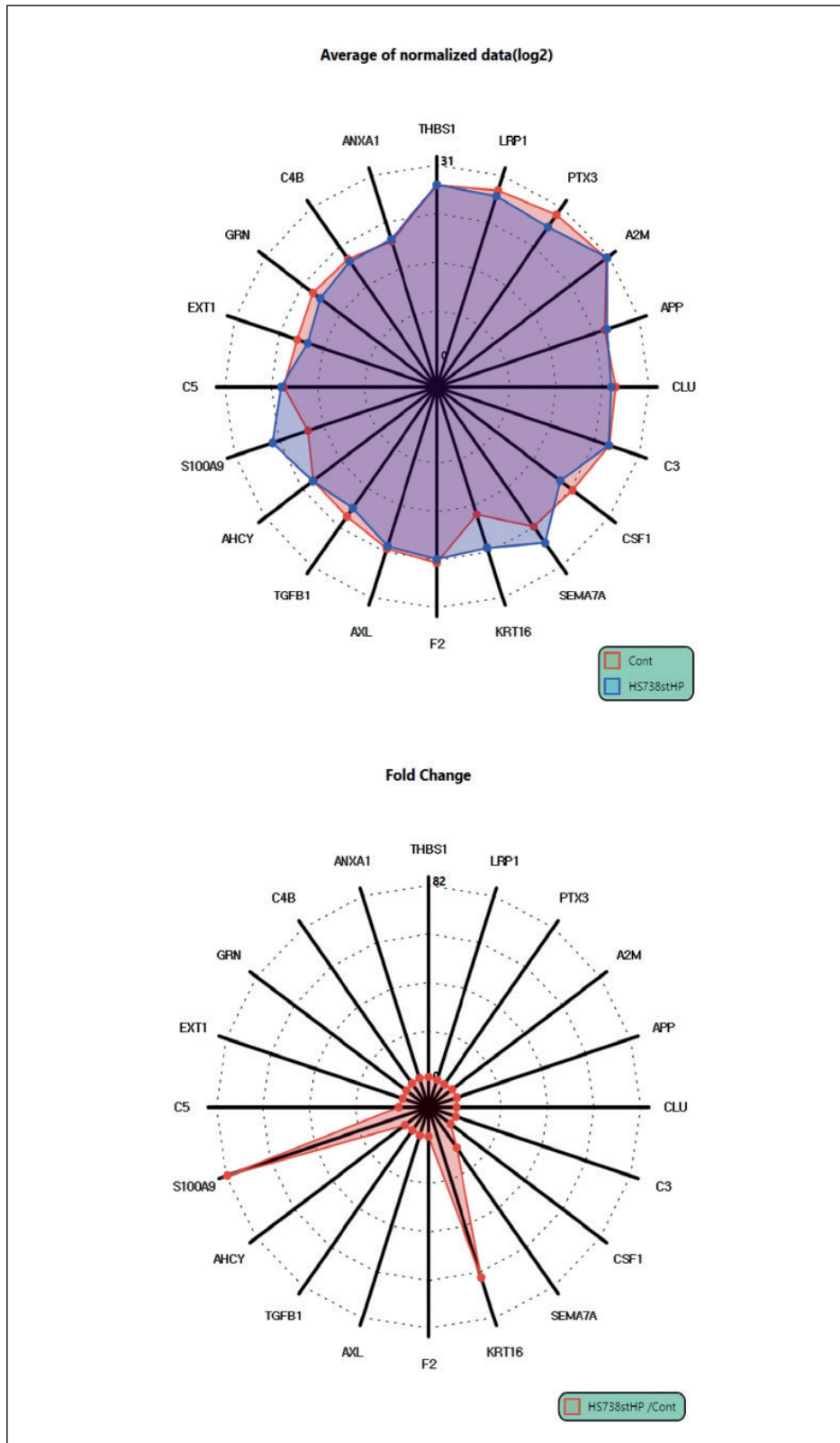
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**Objective:** *Helicobacter pylori* is recognized as a significant risk factor for the development of gastric adenocarcinoma. This study aims to identify target proteins associated with gastric cancer pathogenesis induced by *H. pylori* infection through proteomic analysis of exosomes derived from *H. pylori*-infected gastric epithelial cell lines.

**Materials and Methods:** Proteomic analysis was performed on exosomes extracted from *H. pylori*-infected normal gastric cell lines (Hs738St/Int) and non-infected normal gastric cell lines. Gastric cancer-associated proteins were identified using LC-MS/MS analysis, and cancer-related proteins were further classified through Gene Ontology (GO) analysis.

**Results:** Using thresholds of  $|\log_2FC| > 2$  and  $p < 0.05$ , we identified exosomal proteins that were significantly upregulated or downregulated in *H. pylori*-infected normal gastric cell lines compared to non-infected controls. Subsequently, cancer-related proteins were identified based on functional classifications derived from GO analysis. This approach revealed novel candidate proteins consistently expressed across all functional categories among the upregulated genes in the proteomics dataset. Among these, S100A9 (Protein S100-A9) and KRT16 (Keratin 16) were identified as distinctive components of the exosomes derived from *H. pylori*-infected gastric cell lines.

**Conclusions:** S100A9 and KRT16 are considered to be potentially associated with the development of gastric adenocarcinoma related to *H. pylori* infection. Further studies are required to substantiate this association, which may also provide valuable insights into the mechanisms underlying Helicobacter-associated gastric carcinogenesis.



**FIGURE 1. COMPARISON OF THE PROTEOMIC PROFILES OF EXOSOMES DERIVED FROM *HELICOBACTER PYLORI*-INFECTED AND NON-INFECTED GASTRIC CELL LINES; SIGNIFICANT UPREGULATION OF S100A9 AND KRT16 OBSERVED.**

**Conflict of interest disclosure:**

D. Joo: None. G. Kim: None. M. Lee: None. B. Lee: None. S. Sul: None.

## P01.058.

**DIAGNOSIS OF *HELICOBACTER PYLORI* INFECTION IN PATIENTS WITH DYSPEPSIA: RESULTS OF A SURVEY OF FAMILY PHYSICIANS IN VINNYTSIA REGION, UKRAINE**

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National Pirogov Memorial Medical University, Vinnytsya, Vinnytsya, Ukraine.

**Objective:** Dyspepsia and *H. pylori* infection are two of the most common digestive problems among patients in primary care. The study aimed to assess the knowledge of general practitioners in Ukraine regarding current recommendations for diagnosing *H. pylori* infection.

**Patients and Methods:** We surveyed 132 primary care physicians from medical institutions in Vinnytsia region, Ukraine, regarding the diagnosis of *Helicobacter pylori* infection in patients with dyspeptic complaints.

**Results:** The rating of methods for primary diagnosis of *H. pylori* infection among the surveyed doctors was: detection of *H. pylori* antigen in faeces (51.5%), urea breath test (50%), rapid urease test during endoscopy (38.6%), and serological methods (18.9%). 36.4% would prescribe additional examinations after confirming *H. pylori*, but only 4.2% would determine antibiotic sensitivity. 84.9% recommend eradication control; of these, 53% do it after 4 weeks, 31% after 6 weeks, 13% after 2 weeks, and 3% believe the timing is irrelevant. To monitor eradication effectiveness, doctors used faecal antigen testing (44.7%), urea breath test (28.8%), and rapid urease test during endoscopy (15.2%). Additionally, 21.2% selected serological methods. In cases of recurrent complaints after successful eradication, 42% refer patients to a gastroenterologist, 40% conduct additional examinations, 13% repeat eradication therapy, 3% prescribe symptomatic treatment, and 2% believe no further examination is needed.

**Conclusions:** Family doctors use appropriate diagnostic tests for initial *H. pylori* detection, although invasive methods are sometimes overused. Not all doctors are aware of the proper timing for eradication control, and one in five considers serological tests acceptable for this purpose.

**Conflict of interest disclosure:**

I. Paliy: None. S. Zaika: None. O. Ksenchyn: None. D. Palii: None.

## P01.059.

**PRESCRIPTION OF ERADICATION TREATMENTS ACCORDING TO CURRENT RECOMMENDATION: TRENDS PRESCRIBING BY FAMILY DOCTORS IN VINNYTSIA REGION, UKRAINE**

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National Pirogov Memorial Medical University, Vinnytsya, Vinnytsya, Ukraine.

**Objective:** According to current guidelines, *H. pylori* eradication is the first-line treatment for infected patients with dyspeptic symptoms and should be initiated by primary care physicians. However, growing resistance to previously effective antibiotics is a concern, requiring careful therapy selection and revised strategies. This study aimed to assess the knowledge of family doctors in the Vinnytsia region, Ukraine, regarding current treatment recommendations.

**Patients and Methods:** We surveyed 132 primary care physicians from medical institutions in the Vinnytsia region, Ukraine, regarding aspects of *Helicobacter pylori* treatment in patients with dyspeptic complaints.

**Results:** When choosing eradication regimens for *H. pylori*, 43.9% of physicians selected first-line regimens consistent with current recommendations (for Ukraine, a country with unknown clarithromycin resistance level, these include bismuth-based quadruple therapy, non-bismuth quadruple therapy, and bismuth-based quadruple therapy with amoxicillin and clarithromycin). 40% of respondents selected only non-recommended regimens, while 14.4% chose both appropriate and inappropriate regimens. During eradication therapy, 52.3% preferred pantoprazole, 17.4% rabeprazole, 12.9% esomeprazole, 9.8% omeprazole, 1.5% lansoprazole, and 6.1% had no specific preference for a proton pump inhibitor (PPI). Probiotics were prescribed by 55.3% of the respondents: among them, 49.3% preferred lactobacillus and bifidobacterium combinations, 30.1% used a combination of lactobacilli, bifidobacteria, and *S. boulardii*, while 20.6% prescribed *S. boulardii* alone.

**Conclusions:** Our study revealed insufficient adherence (only 43.9%) to current guidelines among physicians when selecting *H. pylori* eradication regimens. Notably, over half (55.3%) used probiotics, consistent with Maastricht VI/Florence consensus recommendations supporting their use as potentially beneficial.

**Conflict of interest disclosure:**

I. Paliy: None. S. Zaika: None. O. Ksenchyn: None. D. Pali: None.

**P01.060.**

**ASSOCIATION BETWEEN *HELICOBACTER PYLORI* INFECTION AND SOCIOECONOMIC DEVELOPMENT LEVEL IN NORTHEASTERN ROMANIA**

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<sup>1</sup>County Emergency Hospital Bacău, Bacău, Romania, <sup>2</sup>"Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania.

**Objective:** *Helicobacter pylori* (*H. pylori*) is a globally prevalent bacterial infection, particularly widespread in regions with low socioeconomic development. Its presence is associated with substandard living conditions, poor sanitation, and limited access to healthcare services. Identifying the social and geographic determinants of infection is essential for effective public health strategies and targeted interventions. This study aimed to evaluate the prevalence of *H. pylori* infection in relation to socioeconomic factors and place of residence in Bacău County, northeastern Romania.

**Patients and Methods:** We conducted a retrospective analysis of 2,048 patients who presented to Bacău County Emergency Hospital between January 1 and December 31, 2018. Diagnosis was confirmed through fecal antigen testing. Patients were categorized according to locality (urban vs. rural), distance from urban centers, level of socioeconomic development, and access to local infrastructure, including healthcare services and educational institutions.

**Results:** Out of the total patients, 819 (39.9%) tested positive for *H. pylori*. Infection was more prevalent in remote and socioeconomically disadvantaged rural areas, often marked by inadequate infrastructure, poor road networks, limited healthcare access, and unsanitary conditions in schools. Socioeconomic underdevelopment emerged as a significant determinant of infection risk.

**Conclusions:** The findings indicate that *H. pylori* prevalence in Bacău County is strongly associated with social and geographic disparities. Strengthening infrastructure, expanding access to healthcare, improving sanitation and water quality, and investing in health education are critical steps toward reducing infection rates in vulnerable communities.

**Conflict of interest disclosure:**

E.L. Popovici: None. A.E. Oros: None. I.L. Baltatescu: None.

**P01.061.**

**PREVALENCE OF *H. PYLORI* INFECTION IN MARRIED COUPLES IN MOSCOW**

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N.A. GULIEVA<sup>1</sup>, V.V. LOMOVA<sup>1</sup>, I.N. VOYNOVAN<sup>1</sup>, D.S. BORDIN<sup>1,3,4</sup>**

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**Objective:** *Helicobacter pylori* infection remains a global public health concern, affecting approximately 41% of the world's population. Epidemiological data indicate that the likelihood of acquiring the infection in adulthood is significantly reduced. Furthermore, research findings suggest that intrafamilial transmission is not obligatory, even in cases of prolonged and close cohabitation. The aim of the study was to investigate the prevalence of *H. pylori* infection among married couples in Moscow.

**Materials and Methods:** As part of a study on the prevalence of *H. pylori* infection in Moscow (Agreement No. 0903-1/22, March 21, 2022), 196 individuals (98 married couples) with no prior history of *H. pylori* treatment were examined. The age of participants ranged from 24 to 80 years, with a mean age of  $49.04 \pm 13.27$  years (in female  $48.03 \pm 13.04$  years, and in male  $50.05 \pm 13.49$  years). All participants underwent the <sup>13</sup>C-urea breath test (<sup>13</sup>C-UBT).

**Results:** Among the 196 individuals examined, *H. pylori* infection was detected in 119 cases (60.71%). Among men, the prevalence was 63.26% (62 of 98), and among women, 58.16% (57 of 98). In 41 out of 98 couples (41.84%), both spouses tested positive for *H. pylori*; in 20 couples (20.4%), both tested negative; and in 37 couples (37.76%), the test results were discordant.

**Conclusions:** In 37.76% of married couples, *H. pylori* infection was found in only one partner. This finding indicates that intrafamilial transmission of *H. pylori* is not a consistent pattern, and prolonged close contact does not necessarily lead to infection.

**Conflict of interest disclosure:**

K.A. Nikolskaya: None. M.V. Chebotareva: None. E.S. Kuznetsova: None. N.A. Neyasova: None. N.A. Gulieva: None. V.V. Lomova: None. I.N. Voynovan: None. D.S. Bordin: None.

**P01.062.**

**MORPHOLOGICAL DIVERSITY OF *HELICOBACTER PYLORI* IN HUMAN SALIVA OBSERVED BY CORRELATIVE LIGHT AND ELECTRON MICROSCOPE**

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<sup>1</sup>Department of Anatomy&Nanaimaging Lab, Ewha Womans University College of Medicine, Seoul, Korea, Republic of, <sup>2</sup>Department of Anatomy, Ewha Womans University College of Medicine, Seoul, Korea, Republic of, <sup>3</sup>Department of Internal Medicine, Ewha Womans University College of Medicine, Seoul, Korea, Republic of, <sup>4</sup>Department of Internal Medicine, Ewha Womans University College of Medicine, Seoul, Korea, Republic of.

**Objective:** *Helicobacter pylori* (*H. pylori*), a Class I carcinogen, has been implicated in various gastric pathologies. *H. pylori* is transmitted through oral route. Therefore, the oral cavity as a potential extra-gastric reservoir. In this study, we employed correlative light and electron microscopy (CLEM) to investigate the morphological diversity of *H. pylori* in human saliva and assess its association with gastric infection status.

**Patients and Methods:** Unstimulated saliva samples were randomly collected from 32 patients undergoing upper gastrointestinal endoscopy. Samples were fixed with 4% paraformaldehyde and subjected to immunofluorescence staining using a monoclonal anti-*H. pylori* antibody (TMDU-D8). Regions of interest were identified by confocal laser scanning microscope and subsequently imaged at high resolution using scanning electron microscope (SEM). Gastric *H. pylori* infection was determined via histopathological evaluation using Giemsa staining of gastric biopsy specimens.

**Results:** Of total 32 patients, 13 subjects were diagnosed with *H. pylori* gastritis, whereas 19 subjects were diagnosed as not having *H. pylori*. Nonetheless, immunofluorescence analysis revealed *H. pylori*-positive signals in the saliva of all subjects. SEM imaging confirmed the presence of morphologically distinct *H. pylori*-like structures, which were categorized into coccoid, spiral, and intermediate forms. No apparent correlation was observed between salivary *H. pylori* morphotypes and gastric infection status.

**Conclusions:** This study demonstrates the presence of *H. pylori* in the saliva of all individuals, regardless of gastric infection status, highlighting the potential role of the oral cavity as a non-gastric habitat. The observed polymorphic features suggest adaptive morphological transitions but appear independent of gastric colonization, warranting further investigation into their clinical significance and transmission potential.

**Conflict of interest disclosure:**

M. Jee: None. J. Shin: None. K. Shim: None. C. Tae: None.

P01.063.

EVALUATION OF THREE CASES OF IDIOPATHIC GASTRIC ANTRAL ULCER

**K.N. NAKAMICHI**

Fukuokatokushukai hospital, Fukuoka, Japan.

**Background:** We report a 64-year-old patient with idiopathic antral gastric ulcer. Since then, we have experienced two new patients. The first case took several years to diagnose, but since recognizing the disease, the diagnosis has been reached with relative ease. In general, awareness of this disease is low, and further cases are needed to characterize the disease and to educate the public about its features.

**Case series:** Three cases of gastric antral ulcer with an unknown cause encountered at our hospital during the last 2 years were evaluated. The lesions were multiple in 1 and solitary in 2. All these lesions were ellipsoidal and small ulcers 1 cm or less in long diameter with mucosal elevations around them, located primarily in the greater curvature, and accompanied by reddened erosions in other areas of the antrum. From the presence of reddened erosion, mutual friction of the antral mucosa was suspected to be a cause of the disease.

**Conclusions:** The finding of an ellipsoidal, deep ulcer and submucosal tumor-like edematous elevation centered on the greater curvature of the gastric antrum, despite the gastric mucosa being completely free of atrophy, is a trigger for the diagnosis of the disease. This disease is often overlooked, and the chronological endoscopic images provided in this report can be used as a reference.

**Conflict of interest disclosure:**

K.N. Nakamichi: None.

P01.064.

ENDOSCOPIC PREDICTORS OF IRON DEFICIENCY IN *HELICOBACTER PYLORI* GASTRITIS: A KYOTO CLASSIFICATION-BASED STUDY

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**Objective:** *Helicobacter pylori* (*H. pylori*) infection has been reported to be associated with iron deficiency anemia. However, little is known about the association between endoscopic features of *H. pylori* in the Kyoto classification of gastritis and iron deficiency. Therefore, we analyzed endoscopic features of *H. pylori* gastritis and studied the association between the endoscopic features and iron deficiency.

**Patients and Methods:** We retrospectively investigated the patients who were diagnosed with *H. pylori* gastritis between May 2022 and June 2023. Among them, only patients who were performed with laboratory test including anemia profile were selected. The definition of iron deficiency was as a value ferritin which is lower than 55 ug. Multivariate analysis was performed to see the association between the endoscopic features and iron deficiency.

**Results:** Among the enrolled patients, 47 patients were diagnosed with iron deficiency. Females were significantly more prevalent in the group with iron deficiency (87.2% vs. 33.4%,  $p < 0.001$ ). Endoscopic findings showed that nodularity (46.8% vs. 23.4%,  $p = 0.001$ ) and hyperplastic polyps (17.0% vs. 3.7%,  $p = 0.001$ ) were significantly more common among patients with iron deficiency. In the multivariable logistic regression analysis, younger age, female sex, and the presence of hyperplastic polyps were independently associated with an increased risk of iron deficiency.

**Conclusions:** Our study showed that younger age, female gender, and hyperplastic polyps were associated with iron deficiency, similar to the results of previous studies. These findings suggest that specific demographic and endoscopic features may help identify patients at higher risk of iron deficiency.

**TABLE 1. BASELINE CHARACTERISTICS OF PATIENTS WHO WERE DIAGNOSED WITH *HELICOBACTER PYLORI* GASTRITIS ACCORDING TO PRESENCE OF IRON DEFICIENCY.**

Characteristics	Without iron deficiency (n=299)	With iron deficiency (n=47)	p-value
Age	52.5 (43.5-60.6)	47.0 (35.5-55.3)	0.171
Old age (> 65)	47 (15.7%)	3 (6.4%)	0.110
Sex (Male/Female)	199 (66.6%)/100 (33.4%)	6 (12.8%)/41 (87.2%)	< 0.001
<b>Underlying disease</b>			
Hypertension	86 (28.8%)	13 (27.7%)	0.862
DM	44 (14.7%)	6 (12.8%)	0.728
Dyslipidemia	28 (9.4%)	10 (21.3%)	0.020
Angina	5 (1.7%)	0 (0.0%)	0.412
CVA	4 (1.3%)	1 (2.1%)	0.549
<b>Medication</b>			
Antiplatelet	20 (6.7%)	1 (2.1%)	0.208
Anticoagulant	4 (1.3%)	0 (0.0%)	0.424
NSAIDs	18 (6.0%)	2 (4.3%)	0.638
H2 Blocker	6 (2.0%)	1 (2.1%)	0.964
PPI	4 (1.3%)	1 (2.1%)	0.549
PCAB	1 (0.3%)	0 (0.0%)	0.727
<b>Laboratory findings</b>			
Anemia	8 (2.7%)	13 (27.7%)	< 0.001
Hb (g/dL)	13.4 (11.5-14.3)	11.1 (10.1-12.5)	< 0.001
Hct (%)	40.1 (35.7-43.9)	33.2 (30.4-37.1)	< 0.001
Plt x 10 <sup>3</sup> /mm <sup>3</sup>	241.0 (205.5-298.0)	278.0 (237.0-345.0)	0.001
MCV (fL)	90.2 (86.4-93.5)	83.9 (80.7-87.7)	< 0.001
MCH (pg)	31.2 (30.5-32.1)	27.8 (26.6-29.6)	< 0.001
ESR	8.0 [5.0-14.0]	13.1 [8.0-21.5]	< 0.001
Hs-CRP	0.10 [0.10, 0.17]	0.10 [0.10, 0.11]	0.174
Ferritin (ng/mL)	180.0 [130.0, 252.2]	9.0 [6.0, 18.4]	< 0.001
Iron (ug/dL)	120.0 [100.0, 160.0]	18.0 [10.0, 28.0]	< 0.001
TIBC (ug/dL)	320.2 [302.3, 352.8]	410.0 [377.0, 430.0]	< 0.001
Transferrin saturation (%)	34.0 [29.3, 41.2]	5.0 [2.0, 7.0]	< 0.001
Homocysteine (umol/L)	10.3 [7.8-12.1]	7.9 [6.9-9.4]	< 0.001

DM: Diabetes mellitus; CVA: Cerebrovascular accident; NSAIDs: Non-steroidal anti-inflammatory drugs; PPI: Proton pump inhibitor; PCAB: Potassium competitive acid blocker; Hb: Hemoglobin; Hct: Hematocrit; MCV: Mean Corpuscular Volume; MCH: Mean Corpuscular Hemoglobin; ESR: Erythrocyte sedimentation rate; TIBC: Total iron binding capacity; Transferrin saturation: TIBC; Transferrin saturation: iron/TIBC.

**TABLE 2. ENDOSCOPIC FINDINGS OF THE PATIENTS WHO WERE DIAGNOSED WITH *HELICOBACTER PYLORI* GASTRITIS ACCORDING TO THE PRESENCE OF IRON DEFICIENCY.**

	Without iron deficiency (n=299)	With iron deficiency (n=47)	p-value
<b>RAC</b>			<b>0.742</b>
Regular	18 (6.0%)	3 (6.4%)	
Raised erosion	94 (31.4%)	10 (21.3%)	0.214
Herniation	32 (10.7%)	4 (8.5%)	0.841
<b>Atrophy</b>			
Absent or C1	5 (1.7%)	0 (0.0%)	0.367
C2 or C3	33 (11.0%)	8 (17.0%)	
Open type	261 (87.3%)	39 (82.9%)	
Intestinal metaplasia	38 (12.7%)	10 (21.3%)	0.113
<b>Antrum</b>			
Diffuse redness	202 (67.6%)	24 (51.1%)	0.027
None	51 (17.1%)	13 (27.7%)	
With partial RAC	10 (3.3%)	3 (6.4%)	
Severe	36 (12.0%)	7 (14.9%)	
Spotty redness	238 (79.6%)	36 (76.6%)	0.646
Sticky mucus	128 (42.8%)	12 (25.5%)	0.029
Edema	106 (35.5%)	8 (17.0%)	0.011
Nodularity	34 (11.4%)	3 (6.4%)	0.305
Enlarged folds	11 (3.7%)	1 (2.1%)	0.569
Hyperplastic polyp	13 (4.7%)	8 (17.0%)	0.001
Kyoto score	6 [4-6]	5 [1-6]	0.155

RAC: regular arrangement of collecting venules; Endoscopic atrophy was assessed by Kimura-Takemoto classification and classified into six grades: Close (C)-I, C-II, C-III; and Open type.

**TABLE 3. LOGISTIC REGRESSION ANALYSIS FOR RISK FACTORS OF IRON DEFICIENCY IN PATIENTS WHO WAS DIAGNOSED WITH *HELICOBACTER PYLORI* CURRENT INFECTION.**

	Univariate analysis			Multivariable analysis		
	OR	95% CI Lower - Upper	p-value	OR	95% CI Lower - Upper	p-value
Young age (< 50)	2.14	1.15 - 4.00	0.017	2.96	1.22 - 7.18	0.016
Female	13.60	6.01 - 30.66	< 0.001	6.86	2.46 - 19.17	< 0.001
Hypertension	0.78	0.38 - 1.58	0.481			
DM	0.86	0.35 - 2.09	0.743			
Dyslipidemia	2.59	1.16 - 5.80	0.020	3.46	1.29 - 9.28	0.014
CVA	1.62	0.18 - 14.67	0.668			
Antiplatelet	0.30	0.04 - 2.22	0.238			
Raised erosion	0.59	0.28 - 1.25	0.169			
Herniation	0.78	0.27 - 2.28	0.649			
Diffuse redness	0.47	0.23 - 0.98	0.045	0.49	0.22 - 1.09	0.080
Spotty redness	0.82	0.38 - 1.77	0.624			
Sticky mucus	0.43	0.21 - 0.88	0.020	0.41	0.17 - 0.99	0.048
Edema	0.37	0.17 - 0.84	0.017	0.32	0.12 - 0.84	0.021
Nodularity	0.53	0.16 - 1.74	0.295			
Enlarged folds	0.55	0.07 - 4.35	0.573			
Hyperplastic polyp	5.37	1.97 - 14.63	0.001	4.98	1.59 - 15.80	0.006

TR: triglyceride; OR: odds ratio; CI: confidence interval.

**Conflict of interest disclosure:**

H. Lee: None. A. Lee: None. H. Hong: None. J. Seo: None.

## P01.065.

**TAILORED TREATMENT FOR *H. PYLORI* INFECTION BASED ON THE RESULT OF A MOLECULAR DIAGNOSIS KIT FOR DETECTING *H. PYLORI* USING INTRAGASTRIC FLUID****M. KATO, M. TSUDA, M. MATSUMOTO, H. KAGAYA, R. EHARA**

Public Interest Foundation Hokkaido Cancer Society, Sapporo, Japan.

**Objective:** Eradication regimens for *H. pylori* infection tailored to the antibiotic resistance pattern improve eradication rates and minimize side effects. In Japan, a one-week triple therapy combining vonoprazan (VPZ), amoxicillin (AMPC), and clarithromycin (CAM) is used as the first-line eradication therapy under public health insurance. Although the successful rate improved with the switch from PPIs to P-CAB, the successful rate for CAM-resistant strains remained lower. While the results of drug susceptibility tests require more than a week to obtain, *H. pylori* molecular diagnosis kit get automatically a result including CAM mutation within an hour. The aim is to evaluate tailored treatment using a molecular diagnosis kit (Smart-Gene®) using intragastric fluid.

**Patients and Methods:** For patients suspected of *H. pylori* infection, intragastric fluid for the Smart-Gene kit was aspirated during endoscopy. Patients with *H. pylori* positive and CAM susceptible received triple therapy of VPZ, AMPC, and CAM, while patients with *H. pylori* positive and CAM resistant received triple therapy of VPZ, AMPC, and metronidazole. UBT test was performed after three months after eradication for assessment of eradication.

**Results:** Between March 2023 and February 2024, 375 patients were diagnosed as *H. pylori* positive by the Smart-Gene kit. CAM resistant rate was 30.4%. Assessment of eradication therapy was completed in 294 patients. Successful rates of eradication in patients with CAM susceptible were 98.5% and in patients with CAM resistant 96.6%.

**Conclusions:** Tailored therapy for *H. pylori* based on the Smart-Gene kit was administrated simultaneously with *H. pylori* diagnosis, achieving a high eradication rate.

**Conflict of interest disclosure:**

M. Kato: None. M. Tsuda: None. M. Matsumoto: None. H. Kagaya: None. R. Ehara: None.

## P01.066.

**ANTIBIOTIC RESISTANCE AND HETERORESISTANCE OF *HELICOBACTER PYLORI*: THE IMPORTANCE OF MOLECULAR TESTING, LESSONS FROM SERBIA****V. MILIVOJEVIC<sup>1</sup>, D. KEKIC<sup>2</sup>, L. RANIN<sup>2</sup>, I. RANKOVIC<sup>3</sup>, I. BABIC<sup>4</sup>, T. MILOSAVLJEVIC<sup>5</sup>**

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**Objective:** The increasing prevalence of *Helicobacter pylori* (*H. pylori*) infection is paralleled by an alarming rise in antibiotic resistance, a leading factor in its eradication success. This study aimed to assess the prevalence and genetic determinants of *H. pylori* resistance to commonly used antibiotics.

**Patients and Methods:** A retrospective interventional study was conducted on 180 *H. pylori* isolates obtained during upper endoscopy. Genetic determinants and resistance to clarithromycin (CLA-R) and fluoroquinolones (FLQ-R) were evaluated using real-time PCR.

**Results:** Antibiotic resistance was found in 67.2% of *H. pylori* isolates, with overall CLA-R 55.6%, FLQ-R 50%, and dual resistance 33.8%. Primary CLA-R was 42.8%, FLQ-R 32.1%, and dual 28.6%. Secondary resistance was 61.3% (CLA-R), 58.1% (FLQ-R) and 42.7% (dual). CLA-R and FLQ-R correlated significantly with the number of eradication attempts ( $p=0.02$ ,  $p<0.01$ , respectively). The most common mutation

for FLQ-R was at position 87 of the *gyrA* gene (27.4%), while CLA-R was mostly linked to mutations at position 2147 in the *rrl* gene (78.6%). Heteroresistance was identified in 20.3% of samples, with 9% in *rrl* and 7% in *gyrA*. In 2.1% of cases, both susceptible and resistant genotypes to FLQ were found simultaneously, suggesting co-infection with multiple strains.

**Conclusions:** The high antibiotic resistance rate in all therapy lines emphasizes the need for an enhanced antibiotic stewardship. The presence of mixed genotypes and coexisting strains puts forward pretreatment molecular testing as a tool for tailored and effective *H. pylori* eradication therapy.

**Conflict of interest disclosure:**

V. Milivojevic: None. D. Kekic: None. L. Ranin: None. I. Rankovic: None. I. Babic: None. T. Milosavljevic: None.

**P01.067.**

**CYP2C19 GENETIC POLYMORPHISM AND ITS IMPACT ON *HELICOBACTER PYLORI* ERADICATION: A SERBIAN STUDY EXPERIENCE**

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**Objective:** Proton pump inhibitors (PPIs) play a central role in *Helicobacter pylori* (*H. pylori*) eradication. Their pharmacokinetics are influenced by cytochrome P450 enzymes, particularly the highly polymorphic CYP2C19 gene. These polymorphisms result in different metabolic phenotypes—extensive metabolizers (EM), intermediate, and poor metabolizers (PM)—which may affect treatment outcome.

**Patients and Methods:** A retrospective interventional study, including 94 patients, was conducted with the aim to assess the prevalence of CYP2C19 polymorphisms and their association with *H. pylori* eradication success. *H. pylori* diagnosis, genotyping and antibiotic resistance were obtained using real-time PCR following histology and upper endoscopy. All *H. pylori*-positive patients received tailored eradication therapy with high-dose PPIs.

**Results:** Among the 94 patients, 95.7% were EM (81.9% homozygous, 13.8% heterozygous), and 4.3% were PM. *H. pylori* infection was confirmed in 63% of patients, including all PMs. However, there was no statistically significant association between CYP2C19 phenotype and *H. pylori* infection status ( $p=0.29$ ), antibiotic resistance (fluoroquinolones,  $p=0.35$ , clarithromycin,  $p=0.22$ , dual resistance,  $p=0.54$ ), or treatment outcome ( $p=0.38$ ).

**Conclusions:** We observed a high prevalence of the EM phenotype. The lack of significant effect on eradication success was likely due to the use of high-dose PPI. Although CYP2C19 polymorphisms did not significantly influence treatment outcome, the exclusive presence of PMs in the *H. pylori*-positive group suggests a potential clinical relevance. Genotyping prior to therapy initiation and adjustment of PPI dose accordingly may help optimize treatment in select patients.

**Conflict of interest disclosure:**

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## 1. HELICOBACTER - ROUND 09

### P01.080.

#### GASTRIC MICROBIOTA OF *HELICOBACTER PYLORI*-POSITIVE AND *HELICOBACTER PYLORI*-NEGATIVE PATIENTS

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**Objective:** The aim of the study was to compare gastric microbiota of *Helicobacter pylori*-positive and *H. pylori*-negative patients.

**Patients and Methods:** This was a pilot study with a small number of patients (11 patients: 5 men and 6 women, 53.8 ± 20.7) with dyspepsia) to analysis the gastric microbiota by Real-Time Polymerase Chain Reaction (PCR-RT). During the gastro-duodenoscopy, a biopsy was taken from the gastric body and antrum of all patients. *H. pylori* was verified by PCR and bacteriological method. Gastric microbiota was analyzed by PCR-RT. The members of family Herpesviridae (Herpes simplex virus, Cytomegalovirus, Epstein-Barr virus) detection was performed by AmpliSens<sup>®</sup> Multiplex Real-Time Kits. Amount of *H. pylori* was estimated in gastric body and antrum by evaluation quantity of microbes (microscopic analysis): <20 microbes-mild (1 grade), 20-50-moderate (2 grade), >50-high (3 grade).

**Results:** 5 patients were infected with *H. pylori* (45.5%), 6 patients were *H. pylori* negative (54.5%). The members of family Herpesviridae were not detected. Bacteria of the genera *Proteus*, *Klebsiella*, *Enterobacter* or atypical *E. coli* were determined in larger amount in the samples from *H. pylori*-positive patients. Amount of *H. pylori* in gastric antrum was associated with higher content of *Candida albicans* in gut.

**Conclusions:** Gastric microbiota in *H. pylori*-positive and *H. pylori*-negative patients was different and the samples from *H. pylori*-positive patients were characterized by the higher growth of opportunistic bacteria. Future scientific analysis is needed to investigate the role of gastric microorganisms in pathology of digestive system.

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### P01.081.

#### cagA C-TERMINAL VARIANTS IN *HELICOBACTER PYLORI* DIFFERENTIATE DUODENAL ULCER AND GASTRIC CARCINOMA

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**Objective:** CagA is a 120-145 kDa protein located at one end of the cag pathogenicity island of *Helicobacter pylori*, which also encodes components of the type IV secretion system. *H. pylori* strains expressing CagA are associated with both duodenal ulcer and gastric carcinoma, though these diseases differ significantly in their physiological and pathological mechanisms. This study aimed to compare cagA genetic sequences in strains isolated from patients with duodenal ulcer and gastric carcinoma.

**Patients and Methods:** *H. pylori* was isolated from 29 patients with gastric carcinoma and 31 with duodenal ulcer. The cagA gene from each isolate was cloned and sequenced to identify mutations.

**Results:** Although mutations were scattered throughout the CagA sequence, they were more frequent between amino acid residues 200-400 and 850-1100. Mutations at G311, D371, M393, T899, and S1068 occurred in over half of all patients regardless of disease. However, mutations in the C-terminal region specifically at Q889, T899, R952, A968, R997, K1034, Q1067, and S1068 were  $\geq 20\%$  more common in *H. pylori* from duodenal ulcer cases than from gastric carcinoma. EPIYA motifs showed no significant differences between the two groups.

**Conclusions:** C-terminal cagA mutations of *H. pylori* may help distinguish duodenal ulcer from gastric carcinoma, but broader and more detailed studies are needed.

**Conflict of interest disclosure:**

S. Kim: None. H. Choi: None.

**P01.082.**

**EFFECTIVENESS OF REPEATED USE OF AMOXICILLIN-CLARITHROMYCIN TRIPLE THERAPY AND BISMUTH QUADRUPLE THERAPY AFTER PRIOR FAILURE: PRELIMINARY RESULTS FROM THE EUROPEAN REGISTRY ON HELICOBACTER PYLORI MANAGEMENT (HP-EUREG)**

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**Objective:** In clinical practice, the effectiveness of *H. pylori* eradication failures accumulates over time. Guidelines discourage repeated use of the same regimen following initial failure.

**Materials and Methods:** The study evaluated the effectiveness of triple therapy with amoxicillin-clarithromycin and bismuth quadruple therapy (classical and single-capsule) when empirically prescribed as retreatment after one or several failures with the same regimen. Data from European Registry on *H. pylori* management (Hp-EuReg) registered at e-CRF AEG-REDCap (2013-2024) were collected.

**Results:** Among 518 patients treated with amoxicillin-clarithromycin triple therapy between the 2<sup>nd</sup> and 6<sup>th</sup> line, 230 received this same regimen more than once. In the 2<sup>nd</sup> line treatment, effectiveness was 74%, improving with longer treatment duration (50% at 7 days, 72% at 10 days, and 82% at 14 days). In the 3<sup>rd</sup> line, effectiveness decreased to 56%. Of 672 patients receiving classical bismuth quadruple therapy with metronidazole-tetracycline-bismuth between the 2<sup>nd</sup> and 6<sup>th</sup> line, 13 cases underwent repeated use of this regimen across multiple lines. When repeated in the 2<sup>nd</sup> line, effectiveness reached 69%. On the other hand, from 2,579 patients that were treated with single-capsule bismuth quadruple therapy from the 2<sup>nd</sup> to 6<sup>th</sup> line, 101 patients received this same regimen in at least two different lines. The single-capsule demonstrated higher effectiveness in both the 2<sup>nd</sup> and 3<sup>rd</sup> line (achieving  $\geq 90\%$  and approximately 80%, respectively) compared to the classical prescription.

**Conclusions:** Repeated use of amoxicillin-clarithromycin triple therapy achieved notable success in the 2<sup>nd</sup> line retreatment, particularly with 14-day regimens ( $>80\%$ ). Single-capsule bismuth quadruple therapy demonstrated optimal ( $>90\%$ ) effectiveness when repeated in the 2<sup>nd</sup> line.

**Conflict of interest disclosure:**

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**P01.083.**

**CHARACTERIZATION OF THE ZINC-METALLOPROTEASE ACTIVITY OF *HELICOBACTER PYLORI* OUTER MEMBRANE PROTEIN B (HOMB) AND ITS POSSIBLE ROLE IN DRIVING INFLAMMATORY RESPONSES**

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**Objective:** *Helicobacter pylori* evolved several outer membrane proteins which play a key role in epithelial adhesion and virulence. HomB has been linked to a higher incidence of stomach cancer and peptic ulcer disease. In its extracellular domain, HomB possesses a metzincin motif (HEXXHXXGXXHNXXM), a characteristic signature in metalloproteases. *H. pylori* strain devoid of *homb* have a diminished the ability to induce the pro-inflammatory cytokine IL-8 in epithelial cells. We postulate that the proteolytic activity of HomB may trigger inflammation through the activation of protease-activated receptor 2 (PAR-2) present on human epithelial cell surfaces.

**Patients and Method:** Cloning, overexpression and purification of HomB-His<sub>6</sub> in *E. coli* and establishment of a fluorescence assay confirmed its protease activity utilising the fluorescent substrate Boc-Gln-Ala-Arg-AMC. AlphaFold3's multimer capabilities identified a HomB-PAR-2 complex in which the known cleavage site of the N-terminal PAR-2-tethered ligand locates in a cleft precisely at the metzincin protease centre, suggesting proteolytic PAR-2 activation.

**Results:** HomB's protease activity displayed a broad pH range at neutral to slightly alkaline pH, peaking at pH=8. Several mutations were generated in the metzincin motif and tested for effects on proteolytic activity. Multiple molecular docking approaches identified a set of compounds (including FDA-approved protease inhibitors and known home remedies against *H. pylori*) as potential HomB protease activity inhibitors.

**Conclusions:** Our results support the hypothesis that *H. pylori* HomB may induce IL-8 production from human epithelial cells by cleavage of PAR-2. In an *in-silico* drug re-purposing approach, we additionally identified FDA-approved compounds as potential HomB inhibitors.

**Conflict of interest disclosure:**

S. Akaysoy: None. M.H.W. Weber: None. F.H. Falcone: None.

P01.084.

**POSITIVE ASSOCIATION BETWEEN ANTI-*HELICOBACTER PYLORI* IGG ANTIBODY TITERS AND ATROPHIC GASTRITIS IN A LATVIAN COHORT**

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**Objective:** Although *H. pylori* is the most important risk factor for gastric cancer, the role of anti-*H. pylori* antibody titers in gastric carcinogenesis has not been investigated outside Asia. We aimed to analyze the relationship between *H. pylori* antibody titers and the risk of gastric precancerous lesions in a Caucasian population.

**Patients and Methods:** We analyzed the GISTAR pilot study data on participants from Latvia with available anti-*H. pylori* IgG antibody serology and histopathological information. Subjects were classified into four groups according to antibody titer: low-negative (LN), high-negative (HN), low-positive (LP), and high-positive (HP). Odds ratios (ORs) for atrophic gastritis among the 4 groups were compared using logistic regression.

**Results:** Among a total of 1,725 individuals, 970 with available histopathological information were included. A total of 738 individuals (76.1%) had histologically diagnosed atrophic gastritis. Risk of histological atrophic gastritis for each group compared to LN was as follows: HN [OR, 1.52; 95% confidence interval (CI), 0.85-2.72], LP (OR, 2.04; 95%CI, 1.25-3.32), and HP (OR, 2.47; 95%CI, 1.50-4.07). Antibody titer as a continuous variable showed a positive relationship with histological atrophic gastritis (OR, 1.09 per 10 EIU; 95%CI, 1.04-1.14). The positive relationship was clearer among those aged  $\geq 50$  years.

**Conclusions:** Anti-*H. pylori* antibody titer was positively related to the risk of atrophic gastritis in a middle-aged Caucasian population, suggesting its potential complementary role in gastric cancer risk stratification in a European setting where upper endoscopic examination is less routinely available.

**Conflict of interest disclosure:**

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P01.085.

**CORRELATION BETWEEN *HELICOBACTER PYLORI* ASSAY AND UBT RESULTS IN A POPULATION-BASED SCREENING PROGRAM, AS BASED ON INTERIM RESULTS.**

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**Objective:** The gold standard diagnostic tool in identifying *H. pylori* infections is through immunohistochemical analysis following endoscopic resection and biopsy as an invasive strategy. Alternative procedure involves the completion of a urea breath test with optimal sensitivity and specificity. Both strategies are hugely time-consuming and resource intensive, making it largely unfeasible on a broader scale for population screening. Serology offers a simpler, effective strategy to examine a broad population to identify individuals who show evidence of antibody titres that are indicative of a likely ongoing infection.

**Materials and Method:** *H. pylori* IgG as established through Enzyme-linked immunosorbent assay (ELISA) for each seropositive participant was compared to the respective response following urea-breath test. This examination was undertaken using a receiver-operating characteristic curve to ascertain the relationship between seropositivity and positivity at urea breath test. Seropositivity was identified for individuals with an antibody titre of 30EIU units or more to determine an ongoing infection.

**Results:** In a high frequency of cases, antibody titres from 30-38.37EIU units lead to a negative urea breath test result. As determined by analysing the AUC of 0.9704, using Pearson's  $r$  ( $\sim 0.88$ ), indicative of a high level of accuracy, very high specificity and sensitivity. Similarly, serology displays an exceedingly low refusal rate, with huge potential for identifying individuals with both prior and ongoing infections.

**Conclusions:** A threshold of 30 EIU as the antibody titre for seropositivity, may not be applicable to the Irish population with a potential for higher residual antibody following eradication of infection. The localized false positivity rate is indicative of anticipatory results which could prompt further investigation into the alteration of the current threshold within the Irish population. Nonetheless, the application of serology in this manner provides a broad population analysis.

**Conflict of interest disclosure:**

A.M. Moore McKiernan: None.

**P01.086.**

**RISK FACTORS INFLUENCING SEROPOSITIVITY IN A GENERAL POPULATION, THE IRISH EXPERIENCE**

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**Objective:** Ireland is identified to be a low-intermediate risk region with respect to *H. pylori* infection, nonetheless with an increasingly high mortality rate. This has prompted difficulty in the determination of the most prominent risk factors with a causative role in the acquisition of a *H. pylori* infection. Identifying influential risk factors in infection status is essential to identify high-risk groups.

**Patients and Methods:** The relationship between individual patient *H. pylori* IgG antibody titres with respect to birthplace, water source, toilet type and frequent smoking/alcohol consumption. Considering the antibody titre threshold of 30 EIU, for seropositivity. The results were analyzed by odds ratio and pattern analysis with respect to common overlapping factors.

**Results:** Key findings include the identification of higher infection rates in rural populations, where factors like outdoor toilet use and smoking elevate the risk, and in immigrant groups from regions such as India and Morocco. The studies also highlight the challenges in screening participation, with access issues and personal circumstances affecting recruitment rates. Despite these challenges, serological testing is found to be a cost-effective and minimally invasive method with high sensitivity and specificity, offering a reliable initial screening tool.

**Conclusions:** *H. pylori* screening implementation must be developed in alignment with the most high-risk groups. In the Irish population, the strongest indicating factors were identified to be use of outdoor toilets, and local water sources. The concentration of these factors within rural areas should inform the implementation of screening programs.

**Conflict of interest disclosure:**

A.M. Moore McKiernan: C. Other Research Support (supplies, equipment, receipt of drugs or other in-kind support); Significant; TOGAS, Beacon Hospital.

**P01.087.**

**CLINICAL EVALUATION OF A 14-DAY MODIFIED BISMUTH QUADRUPLE THERAPY FOR THE ERADICATION OF *H. PYLORI* IN A HIGH CLARITHROMYCIN AND METRONIDAZOLE RESISTANCE AREA**

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**Objective:** We aimed to assess a 14-day modified bismuth quadruple *H. pylori* eradication therapy in Greece a high metronidazole and clarithromycin resistance area where tetracycline is lacking.

**Patients and Methods:** We included 72 consecutive patients who had upper GI endoscopy. Excluded patients had eradicated *H. pylori*, recent use of antibiotics, bismuth, NSAID or aspirin, allergy, gastrectomy, pregnant women. All eligible patients were CLO-test and/or histology positive. Before third line treatment culture and antibiotic sensitivity tests (E-test) were carried out. Treatment contained: Esomeprazole 40 mg and Bismuth subcitrate 240 mg twice daily and Metronidazole 500 mg, Amoxicillin 1000 mg, three times daily, for 14 days. Compliance and adverse effects were recorded. Eradication tested 6-8 weeks later through histology and/or <sup>13</sup>C-UBT.

**Results:** Seventy-two patients (38F/34M, aged 24-81, mean: 54 years) were evaluated for eradication (30% smokers, 15% ulcer disease). Treatment was first line in 52 (71.4%) and third line in 20 (28.6%). Susceptibility was available in 18/20 (90%) and all were metronidazole resistant. Adherence was 97% (95%CI 90-99.1). Twenty-four (33.3%) patients experienced side effects mainly mild diarrhea, nausea and taste disturbances. Overall ITT and PP eradication rates were 90.2% (95%CI 79.1-95.7) and 92.8% (95%CI 80.7-94.2) but were higher in first line (ITT 92.3%, 95%CI 81.8-96.6, PP 96%, 95%CI 86.5-98.9) than third line (ITT 85% 95%CI 63.9-94.7, PP 85% 95%CI 63.7-94.7), (*p*=ns all comparisons). Rescue therapy eradicated 16/18(88.9%) metronidazole resistant strains.

**Conclusions:** An optimized (14-day, high-dose esomeprazole) bismuth quadruple regimen substituting tetracycline for high dose amoxicillin is effective and safe *H. pylori* eradication therapy.

**Conflict of interest disclosure:**

E. Xirouchakis: None. F. Laoudi: None. S. Xirouchakis: None. C. Spiliadi: None. A. Pelekanos: None. D. Sgouras: None. S.D. Georgopoulos: None. B. Martinez-gonzales: None.

**P01.088.**

**COMPLICATED CLINICAL COURSE OF ISCHEMIC HEART DISEASE (IHD) PATIENTS WITH CONCURRENT *HELICOBACTER PYLORI* INFECTION DURING COVID-19: BASED ON OUR CLINICAL DATA**

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**Objective:** This study investigates the clinical impact of *Helicobacter pylori* (*H. pylori*) infection in patients with ischemic heart disease (IHD) during the COVID-19 pandemic.

**Patients and Methods:** Between 2020 and 2023, we evaluated patients aged 55-67 with confirmed IHD, active *H. pylori* infection, and subsequent COVID-19 infection. These individuals exhibited significantly elevated levels of C-reactive protein (CRP), interleukin-1 (IL-1), alanine aminotransferase (ALT), aspartate aminotransferase (AST), amylase, procalcitonin, and D-dimer. Gastrointestinal

symptoms such as diarrhea and epigastric pain were frequent. Despite receiving *H. pylori* eradication therapy, inflammatory markers remained persistently high. In comparison, patients with IHD and COVID-19 but without *H. pylori* infection demonstrated milder biochemical abnormalities—elevated CRP and D-dimer, borderline ALT, but normal IL-1 and procalcitonin levels. This suggests that *H. pylori* contribute to heightened systemic inflammation and worsened disease severity in the presence of COVID-19. The angiotensin-converting enzyme 2 (ACE2) receptor, expressed in the liver, pancreas, kidneys, and intestinal epithelial cells, facilitates SARS-CoV-2 entry and plays a key role in the development of acute respiratory distress syndrome through cytokine storm pathways. FXR (farnesoid X receptor) is known to regulate ACE2 expression and impair autophagy, promoting inflammation and potentially pancreatic damage. Experimental data indicate that ursodeoxycholic acid (UDCA) inhibits FXR signaling and reduces ACE2 activity, decreasing susceptibility to SARS-CoV-2 infection *in vitro* and *in vivo*. This mechanism may offer a novel prophylactic strategy for patients with comorbid IHD and *H. pylori* infection. These findings support the need for comprehensive, multidisciplinary care and further research into FXR/ACE2 modulation in managing high-risk patient populations.

**Conflict of interest disclosure:**

M.M. Kankia: None. K. Gargulia: None. A. Revishvili: None. T. Gubeladze: None. M. Dzidziguri: None.

**P01.089.**

**MORPHOLOGIC SIGNS OF PRIMARY AND SECONDARY AUTOIMMUNE GASTRITIS**

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**Objective:** Autoimmune gastritis (AIG) is characterized by the damage of terminal parts of the chief glands in oxyntic part of gastric mucosa. The etiology of primary AIG remains unknown, but there is some evidence that appearance of specific antibodies may be due to concomitant or past *Helicobacter pylori* infection, leading to the formation of secondary AIG.

**Patients and Methods:** We examined 2200 patients (1358 women and 842 men) with clinical manifestations of chronic gastritis aged 20 to 84 years. Biopsy was taken during endoscopy. Histological study was carried out according to OLGA protocol. *H. pylori* was detected by urease test, histology, PCR and blood antibodies. AIG was confirmed by blood antibodies to parietal cells.

**Results:** Histological signs of AIG were detected in 518 patients (23.6%). In oxyntic part of gastric mucosa, there were revealed emperipolesis and destruction of parietal cells, disorganization of the terminal parts of the chief glands with the formation of periglandular inflammatory infiltrates. All patients with histological signs of AIG were divided into 3 groups. The first group (197 patients) included patients with AIG without antral lesions. The second group consisted of patients with AIG and inflammatory or atrophic changes in antrum, but without *H. pylori* infection (278 patients). The third group consisted of patients with AIG in combination with HP-associated gastritis (43 patients). Some factors leading to the development of HP-associated pangastritis may serve as a trigger mechanism for development of secondary AIG.

**Conclusions:** More than 60% cases of AIG are not primary but secondary AIG with special morphological manifestations which require further study.

**Conflict of interest disclosure:**

S. Khomeriki: None. D. Bordin: None. N. Khomeriki: None. E. Parfenchikova: None.

P01.090.

**NEWS ON DYSPEPSIA MANAGEMENT: IS ROUTINE BIOPSY MAPPING WARRANTED IN *H. PYLORI*-NEGATIVE PATIENTS?**

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**Objective:** *Helicobacter pylori* (Hp) is a known cause of chronic gastritis and dyspepsia, but it has become less prevalent in Western countries leading to questions about the value of routine endoscopic biopsies in Hp negative dyspeptic patients. This study examines the prevalence and severity of precancerous gastric lesions in dyspeptic patients with and without Hp infection to determine the need for endoscopic biopsies.

**Patients and Methods:** This retrospective study enrolled 2,171 dyspeptic patients who underwent upper gastrointestinal endoscopy (UGIE) and biopsy mapping between January 2022 and August 2024. Patients were divided based on Hp status using a composite reference method (CRM). Biopsy samples were collected and analyzed according to OLGA and OLGIM staging systems to assess the presence of precancerous lesions.

**Results:** Out of 2,171 patients, 646 (29.8%) were Hp positive. In these patients, chronic active gastritis was prevalent, and a significant percentage reached OLGA/OLGIM stages III and IV, indicating higher cancer risk. Conversely, Hp-negative patients showed minimal gastritis, with most remaining at stage 0 in both staging systems. A risk factor analysis revealed that advanced age and male gender were associated with an increase in lesion severity, with patients in the oldest age quartile (67-89 years) more likely to reach advanced OLGA/OLGIM stages. Among younger patients, precancerous lesions were rare and predominantly at stage 0.

**Conclusions:** Our findings suggest that routine biopsy sampling may not be necessary in dyspeptic patients without Hp infection, as they rarely exhibit precancerous lesions. Biopsy guidelines may be reconsidered to target higher-risk populations to improve clinical efficiency and resource allocation.

**Conflict of interest disclosure:**

G. Fiorini: None. M. Pavoni: None. A. D'Errico: None. G. Massarenti: None. L. Arlotti: None. C. Borghi: None. D. Vaira: None.

P01.091.

**ACCURACY OF A NEW INNOVATIVE COLUMN-FREE MINIATURIZED GAS-MASS SPECTROMETER (GMS) COMPARED TO A CLASSIC GMS TO DIAGNOSE AND MONITOR *HELICOBACTER PYLORI* INFECTION: A PROSPECTIVE SINGLE BLIND STUDY**

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**Objective:** The gold standard for *Helicobacter pylori* (Hp) infection diagnosis is the Composite Reference Method (CRM), including the <sup>13</sup>C Urea Breath Test (<sup>13</sup>C-UBT), histological examination, rapid urease test (RUT) on antral biopsy, and culture examination. Routinely, a mass spectrometer is used to detect and measure <sup>13</sup>CO<sub>2</sub> in breath; however, this device implies very high performing costs. Therefore, new instruments have been considered, such as nondispersive isotope-selective infrared spectro-

photometer (NDIRS) and, more recently, column-free portable gas mass spectrometer (MS) equipped with an original nanopore gas sampling system. Our aim is to compare the performance on the first diagnosis and post-treatment control of Hp infection between the standard MS and the innovative column-free miniaturized gas MS.

**Patients and Methods:** Consecutive patients never treated for Hp infection and referred to our unit to perform an UGE between April and November 2024 were evaluated. Patients' samples were analysed with both methods and data were compared.

**Results:** 328 consecutive patients were tested for Hp infection and 92 (28.0%) were positive. The ROC curve indicated 9.1 as best cut-off value. The comparison between the two analysis methods showed a sensitivity of 98.0% (CI95%, 92.0-99.0) and a specificity of 99.0% (CI95%, 97.00-100.0), no statistically significant differences were observed ( $p$ -value= 0.572).

**Conclusions:** Our experience highlights the potential for introducing new diagnostic tools that are less demanding in terms of cost and labour, without compromising diagnostic accuracy. This innovative diagnostic tool proves to be as compact and as reliable, for this reason it deserves to be implemented in clinical practice.

**Conflict of interest disclosure:**

G. Fiorini: None. M. Pavoni: None. L. Gatta: None. L. Arlotti: None. G. Massarenti: None. C. Borghi: None. D. Vaira: None.

## 1. HELICOBACTER - ROUND 10

### P01.104.

#### PREVALENCE OF OIPA AND BABA2 GENES OF *HELICOBACTER PYLORI* AND THEIR CLINICAL CORRELATIONS IN PATIENTS FROM THE STATE OF GOIÁS, BRAZIL

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**Objective:** *Helicobacter pylori* infection is an etiological factor in various gastric diseases. The oipA and babA2 virulence genes of *H. pylori* have been associated with severe clinical outcomes. The aim of the study was to analyze the frequency of genes oipA and babA2 and their association with the gastric diseases.

**Patients and Methods:** A total of 106 gastric biopsy samples from dyspeptic patients in Brazil were analyzed, with 69 patients testing positive for *H. pylori*. The detection of the oipA and babA2 genes was performed through molecular analysis. The chi-square test and Fisher's exact test were used to assess the association of these genes with histopathological results, age, and sex.

**Results:** The oipA gene was detected in 15.9% of the samples and was more frequently found in patients with erosive gastritis (45.5%;  $p = 0.033$ ). In another hand it was less frequent in cases of erosive duodenitis ( $p < 0.001$ ), erythematous duodenitis ( $p = 0.020$ ), and general duodenitis ( $p < 0.001$ ), indicating an inverse association with these conditions. The babA2 gene was detected in 26.1% of the samples and was less frequently found in patients with erythematous ( $p = 0.011$ ) and general duodenitis ( $p = 0.001$ ). No significant associations were observed with age, sex, or severe lesions.

**Conclusions:** The oipA and babA2 genes were detected in 15.9% and 26.1% of the samples, respectively. The oipA gene was more prevalent in erosive gastritis, while both genes were less prevalent among patients with duodenitis. These associations may reflect distinct pathogenic mechanisms and contribute to the development of more targeted therapeutic strategies.

**Conflict of interest disclosure:**

M.S. Barbosa: None. M.O. Silva: None. D.N. Maciel: None. H.C.O.S. Dutra: None. L.T. Rasmussen: None.

P01.105.

**MOLECULAR PROFILE OF *HELICOBACTER PYLORI* IN PATIENTS FROM CENTRAL BRAZIL AND ITS CLINICAL IMPLICATIONS**

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**Objective:** *Helicobacter pylori* has a wide genetic diversity and is associated with gastroduodenal diseases. The severity of clinical outcomes is influenced by the virulence genes of the microorganism. This study analyzed the frequency of the *cagA*, *vacA*, *dupA*, *oipA* and *babA2* genes, both individually and in combination, and their association with the severity of gastric diseases.

**Patients and Methods:** A total of 106 samples from dyspeptic patients in the Central Brazil region were analyzed, of which 69 tested positives for *H. pylori*. The study population was classified into three groups based on histopathological reports. Gene identification (*16S rRNA*, *cagA*, *vacA*, *dupA*, *oipA* and *babA2*) was performed using PCR. The association between genetic profiles and lesion severity was assessed using the chi-square test and Pearson's correlation.

**Results:** The *cagA* gene was present in 79.7% of the samples, followed by *dupA* (69.6%) and *vacA* (53.6%). The *cagA/babA2* combination was observed in 21.7% of the strains, while *cagA/oipA* and *cagA/oipA/babA2* appeared in 13.0% and 10.1%, respectively. In severe diseases, the *cagA* gene was present in 100% of the samples, while *oipA* was detected in 28.6%. There was no significant association between the genes, their combinations, and the severity of the lesions ( $p > 0.05$ ).

**Conclusions:** There was a high frequency of the *cagA*, *dupA* and *vacA* genes across the groups; however, no statistically significant association was observed between genetic profiles and the severity of gastric diseases. Larger and multifactorial studies are needed to better understand the interaction between *H. pylori* virulence factors and host response.

**Conflict of interest disclosure:**

M.S. Barbosa: None. D.N. Maciel: None. L.T. Rasmussen: None. M.O. Brasil: None. H.C.O.S. Dutra: None.

P01.106.

**EFFECTIVENESS OF SALIVARY ANTIGEN AND UREA BREATH TEST FOR DIAGNOSING *HELICOBACTER PYLORI* IN PATIENTS AFTER SUBTOTAL GASTRECTOMY BILLROTH II**

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**Objective:** Patients who have undergone gastrectomy have a higher incidence of false negatives in the urea breath test which reduce its sensitivity. This is attributed to the altered anatomy after surgery which allows urea to pass through the stomach more quickly, and the isotope can be affected by the bile that inevitably flows back after surgery, which increases the incidence of false negatives. This study aims to assess the detection rates of urea breath test and salivary *Helicobacter pylori* (*H. pylori*) antigen test to detect *H. pylori* in patients who have undergone subtotal gastrectomy Billroth II.

**Patients and Methods:** In a single-center prospective pilot study, 30 patient who underwent *H. pylori* salivary Ag test, urea breath test and histology with Giemsa stain among those who received gastroscopy for surveillance after subtotal gastrectomy Billroth II due to gastric cancer were analyzed. The gold standard for *H. pylori* positivity was defined as positive Giemsa stain.

**Results:** The *H. pylori* positivity rate among all study subjects was 28.1%. The sensitivity of the urea breath test was calculated as 33.3%, specificity 73.9%, positive predictive value 33.3%, and negative predictive value 73.9%. The sensitivity of the salivary *H. pylori* Ag test was calculated as 66.7%, specificity 78.3%, positive predictive value 54.5%, and negative predictive value 85.7%.

**Conclusions:** The *H. pylori* salivary antigen test can be considered a viable option among screening tests and as a supportive method, may complement other diagnostic tools such as the urea breath test. Further research is needed to establish its broader clinical utility in post-gastrectomy patients.

**Conflict of interest disclosure:**

A. Lee: None. S. Kim: None. S. Jung: None. C. Lee: None.

**P01.107.**

**THE RELATIONSHIP BETWEEN *HELICOBACTER PYLORI* AND INTESTINAL METAPLASIA IN ULCER AND NON-ULCER DYSPEPSIA: AN ENDOSCOPIC AND HISTOPATHOLOGICAL EVALUATION**

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**Objective:** The aim of the study was to evaluate the relationship between *Helicobacter pylori* (*H. pylori*) infection and the development of intestinal metaplasia in dyspeptic patients in Samsun, Turkey, and to statistically analyze the differences between ulcer and non-ulcer dyspepsia subgroups.

**Patients and Methods:** Dyspeptic patients included in the study underwent endoscopic and histopathological evaluations to detect the presence of *H. pylori* infection and intestinal metaplasia. Fisher's Exact test was used for statistical analysis.

**Results:** A total of 110 dyspeptic patients were included in the study. Of these, 46 (41.8%) were in the ulcer group and 64 (58.2%) were in the non-ulcer dyspepsia group. In the ulcer group, 89.1% (n=41) were *H. pylori* positive. Intestinal metaplasia was observed in 4 (9.8%) of these patients, and in 1 (20%) of the 5 *H. pylori* negative patients. In the non-ulcer group, 73.4% (n=47) were *H. pylori* positive. Intestinal metaplasia was detected in 7 (14.9%) of the *H. pylori* positive patients and in 3 (17.6%) of the *H. pylori* negative patients. Overall, 80% (n=88) of the patients were *H. pylori* positive. Intestinal metaplasia was present in 12.5% (n=11) of the *H. pylori* positive patients and in 18.2% (n=4) of the *H. pylori* negative patients.

**Conclusions:** In our study, based on these regional findings, no statistically significant association was found between *H. pylori* infection and the development of intestinal metaplasia in ulcer patients, non-ulcer dyspepsia patients, or the general patient population ( $p>0.05$  for all groups). Further studies with larger sample sizes, as well as consideration of other potential contributing factors, are needed.

**Conflict of interest disclosure:**

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**P01.108.**

**IMPACT OF COMORBIDITIES AND *HELICOBACTER PYLORI* INFECTION STATUS ON SURVIVAL OF PATIENTS WITH GASTRIC CANCER IN BRAZIL**

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**Objective:** Gastric cancer is a major cause of cancer-related mortality worldwide. While *Helicobacter pylori* infection is a known etiological factor, its prognostic significance and association with comorbidities remain unclear. This study investigated the association between *H. pylori* infection and mortality risk in gastric cancer patients, considering comorbidities.

**Patients and Methods:** This hospital-based cohort included patients diagnosed with gastric cancer (ICD C16) between 2009 and 2025 across health centers in three Brazilian regions. Overall survival was estimated using the Kaplan-Meier method, with curves compared *via* log-rank test. Prognostic factors were assessed using univariate and multivariate Cox regression to estimate hazard ratios (HRs) and 95% confidence intervals (CIs).

**Results:** Among 334 patients, 74 (22.8%) were *H. pylori* positive. Infection was less common in former alcohol users (15.5%;  $p=0.049$ ) and cardiac patients ( $p=0.012$ ). Tumors were more frequently located in the body and antrum in infected patients and in the cardia/fundus in non-infected ( $p=0.008$ ). Infected individuals had fewer distant metastases ( $p=0.001$ ) and showed higher 5-year survival (65% vs. 52%;  $p=0.061$ ). Advanced staging, metastases, poor differentiation, and Charlson Index  $\geq 3$  were associated with increased mortality risk, particularly among *H. pylori*-negative patients. In the multivariate analysis, among *H. pylori*-negative patients, the presence of vascular disease increased the risk of death (HR=1.67;  $p=0.048$ ). Among *H. pylori*-positive patients, the risk of death was higher in the presence of ulcers (HR=6.53;  $p=0.015$ ).

**Conclusions:** *H. pylori* infection was associated with a lower mortality risk in gastric cancer, particularly in the absence of vascular disease and presence of ulcer.

**Conflict of interest disclosure:**

M.S. Barbosa: None. A.F.P.L. Ramos: None. M. de Abreu: None. M.P. Curado: None. L.T. Rasmussen: None.

**P01.109.**

**REPEATED *H. PYLORI* ERADICATION THERAPY PRESCRIBING IN IRISH PRIMARY CARE: A 10-YEAR REVIEW**

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**Objective:** Primary clarithromycin resistance (>15% in Europe) is a common cause of first-time *H. pylori* eradication failure. Current Irish guidelines (2024) recommend bismuth quadruple therapy (BQT) as first-line regimen unless clarithromycin susceptibility is confirmed. However, bismuth remains unlicensed in Ireland, restricting BQT availability. The aim of the study was to explore the impact of first-line regimen choices on repeated eradication therapy prescribing.

**Materials and Methods:** An analysis of *H. pylori* eradication therapy prescribing patterns in Irish primary care from 2012 to 2022 was conducted using national pharmacy claims data, representing patients eligible for the General Medical Services (GMS) scheme (>30% of the Irish population). Associations between repeated therapy prescribing and gender and age group (<45 and  $\geq 45$  years) were explored using  $\chi^2$ -tests (significance  $p<0.05$ ). Failure rates for each first-line regimen were calculated as the ratio of repeated to total prescriptions. A therapy was considered failed if followed by another course of the same or a different regimen.

**Results:** Between 2012 and 2022, a total of 113,555 eradication therapies were prescribed to 90,124 patients, with 16.8% of patients requiring re-treatment. Of these, 52.7% were re-treated within six months, while 66.4% received the same regimen again. Repeated therapy was more commonly prescribed to women ( $\chi^2=50$ ,  $p<0.001$ ) and patients <45 years ( $\chi^2=172$ ,  $p<0.001$ ). The highest failure rates were observed for clarithromycin-metronidazole (15.2%) and amoxicillin-clarithromycin (13.7%) triple regimens. The failure rate of BQT was 8.4%.

**Conclusions:** Re-treatment was common and often involved repeating ineffective regimens. Wider access to BQT may improve first-line treatment success and reduce repeated prescribing.

**Conflict of interest disclosure:**

M. Dobrić: None. S.M. Smith: None. C. Medina Martin: None. C. Ryan: None.

## P01.110.

**PREDICTING *HELICOBACTER PYLORI* REINFECTION AFTER SUCCESSFUL INITIAL ERADICATION WITH FIRST-LINE QUADRUPLE THERAPIES IN A SOUTH-EUROPEAN COUNTRY****E. GRAVITO-SOARES<sup>1,2</sup>, N. ALMEIDA<sup>1,2</sup>, M. GRAVITO-SOARES<sup>1,2</sup>, B. ROCHA<sup>3,4</sup>, P.N. FIGUEIREDO<sup>1,2</sup>**<sup>1</sup>Gastroenterology Department, Centro Hospitalar e Universitário de Coimbra, Unidade Local de Saúde de Coimbra, Coimbra, Portugal, <sup>2</sup>Faculty of Medicine, University of Coimbra, Coimbra, Portugal, <sup>3</sup>Faculty of Pharmacy, University of Coimbra, Coimbra, Portugal, <sup>4</sup>Center for Neuroscience and Cellular biology, University of Coimbra, Coimbra, Portugal.**Objective:** The aim of the study was to determine the independent factors predicting recurrence after successful eradication with a first-line treatment for *H. pylori* infection.**Patients and Methods:** All patients were submitted to eradication treatment with five quadruple therapies with Esomeprazole (A: 14-day Concomitant with metronidazole 500 mg tid; B: 14-day Concomitant with metronidazole 500 mg bid; C: 10-day Quadruple with bismuth; D: 14-day Sequential; E: 14-day Hybrid) in a blind, randomized trial. Efficacy rate at 1-2 months and recurrence rate at 12 months using <sup>13</sup>C-urea breath test were evaluated. Sociodemographic data, personal/family history, health status and biochemical parameters were assessed using univariate and multivariate analyses.**Results:** A total of 126 patients (42.9% males; mean age: 57.4±16.7 years) concluded the treatment protocol (A-25; B-21; C-27; D-24; E-29). Overall efficacy rate of quadruple therapy regimens was 98.4% (n=124): Group A-100%; Group B-100.0%; Group C-100.0%; Group D-100.0%; Group E-93.1% (p=0.147). Overall recurrence rate of quadruple therapy regimens was 4.1% (n=5/123): Group A-12.0%; Group B-9.5%; Group C-0.0%; Group D-0.0%; Group E-0.0% (p=0.009). After univariate/multivariate analysis, high LDL-cholesterol level (OR 1.032, p=0.042), non-bismuth concomitant *H. pylori* eradication regimen (OR 8.904, p=0.064) and alcoholism (OR 8.333, p=0.035) were independent risk factors for *H. pylori* reinfection.**Conclusions:** In this South-European country, all quadruple therapy regimens with or without bismuth are very effective for *H. pylori* eradication. The 12-months recurrence rate of *H. pylori* infection after successful eradication is <5%. High LDL-cholesterol, non-bismuth concomitant *H. pylori* eradication regimen and alcoholism are independent predictors for *H. pylori* reinfection. A close surveillance on infectious state in high-risk patients is crucial to prevent long-term *H. pylori*-associated complications.**Conflict of interest disclosure:**

E. Gravito-Soares: None. N. Almeida: None. M. Gravito-Soares: None. B. Rocha: None. P.N. Figueiredo: None.

## P01.111.

**CLARITHROMYCIN EXPOSURE MODULATES EFFLUX GENE EXPRESSION IN *H. PYLORI* IN A STRAIN SPECIFIC MANNER****S.D. MOLLOY<sup>1</sup>, D. BERRY<sup>1</sup>, T.J. BUTLER<sup>1</sup>, C. COSTIGAN<sup>2</sup>, J. O'CONNOR<sup>2</sup>, D. MCNAMARA<sup>1,2</sup>, S.M. SMITH<sup>1</sup>**<sup>1</sup>Trinity College Dublin, Dublin, Ireland, <sup>2</sup>Tallaght University Hospital, Dublin, Ireland.**Objective:** While antibiotic resistance in *Helicobacter pylori* is often attributed to chromosomal mutations, the role of efflux pumps remains insufficiently studied. The aim of the study was to assess changes in efflux gene expression in *H. pylori* clinical isolates in response to clarithromycin.**Patients and Methods:** With ethical approval and informed consent, *H. pylori* was cultured from corpus and antrum biopsies regardless of *H. pylori* treatment history. Isolates underwent antimicrobial susceptibility testing via ETEST (bioMérieux).Results were interpreted per EUCAST 2025 guidelines. RNA was extracted from isolates cultured with or without clarithromycin using the AllPrep Bacterial Kit (Qiagen). RT-qPCR targeting efflux genes *hp0939*, *hp0471*, *hp0605*, and *hp0497* was conducted using RevertAid First Strand Kit and PowerUp SYBR Green Master Mix (Thermo Scientific). Gene expression was analyzed by the ΔΔCt method relative to strain 60190 (ATCC 49503). The Wilcoxon signed-rank test was used to compare fold changes pre- and post-clarithromycin exposure. A p<0.05 was considered significant.

**Results:** Samples from 28 patients 42.9% female (N=11), mean age: 49.1±18.2 years) were analyzed. 28.6% (N=8) were susceptible to all antibiotics. Resistance to clarithromycin was 35.7% (N=10), to metronidazole was 60.7% (N=17), and to levofloxacin was 21.4% (N=6). 14.3% (N=4) were multidrug resistant. Baseline expression of the efflux genes varied across isolates. Clarithromycin exposure significantly increased efflux pump gene expression in a subset of clarithromycin-resistant isolates.

**Conclusions:** Clarithromycin exposure can modulate efflux pump gene expression in *H. pylori*. Further studies are required to determine the effect of increased efflux gene expression on drug efflux in these isolates.

**Conflict of interest disclosure:**

S.D. Molloy: None. D. Berry: None. T.J. Butler: None. C. Costigan: None. J. O'Connor: None. D. McNamara: None. S.M. Smith: None.

**P01.112.**

**FIRST-LINE TREATMENT OF *HELICOBACTER PYLORI* INFECTION IN CLINICAL PRACTICE IN ITALY: DATA FROM THE ITALIAN REGISTRY ON *HELICOBACTER PYLORI* TREATMENT (HP-ITAREG)**

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**Objective:** The treatment of *Helicobacter (H.) pylori* infection is a major issue for the increased prevalence of antimicrobial resistance. We aimed to assess pattern and effectiveness of empirical first-line treatment for *H. pylori* infection in clinical practice in Italy.

**Patients and Methods:** The "Italian Registry on *H. pylori* treatment" (Hp-ItaReg) is a prospective, multi-center study registering adult patients who received at least one *H. pylori* treatment in clinical practice in Italy. Data were collected online using the web application REDCap. Eradication rates were assessed according to the modified Intention to Treat (mITT) and per protocol (PP) analyses.

**Results:** A total of 3,919 patients received an empirical first-line treatment for *H. pylori* infection in 18 Italian centers. Of these, 1,369 (34.9%) received sequential therapy (ST), 1,239 (31.6%) single capsule bismuth quadruple therapy (BQT), 901 (23%) standard triple therapy (STT), 373 (9.6%) concomitant therapy (CT) and 37 (0.9%) other therapies. Four hundred eighty-one patients were lost to follow-up. A total of 3,438 patients was included in the mITT analysis and 3,346 patients in the PP analysis. According to mITT and PP analyses, eradication rates were 94.1% (1038/1103) and 96.0% (1007/1049) with single capsule BQT, 93.0% (277/298) and 96.2% (275/286) with CT, 88.3% (1038/1176) and 88.3% (1033/1170) with ST, 78.8% (657/834) and 79.4% (647/815) with STT, 70.4% (19/27) and 73.1% (19/26) with other regimens.

**Conclusions:** Sequential therapy and single capsule BQT seem to be the regimens most frequently prescribed for the first-line treatment of *H. pylori* in Italy. Quadruple therapies are the most effective treatments.

**Conflict of interest disclosure:**

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**P01.113.**

**HELICOBACTER PYLORI INFECTION ASSOCIATED WITH NON-THYROIDAL ILLNESS SYNDROME IN CHILDREN WITH CONGENITAL HYPOTHYROIDISM**

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**Objective:** *Helicobacter pylori* (HP) infection has been linked to altered thyroid hormone metabolism and increased levothyroxine needs in hypothyroid adults. As eradication reduces this requirement in adults, similar effects are expected in children. We evaluated the impact of HP eradication on thyroid hormone balance and levothyroxine dosing in children and adolescents with congenital hypothyroidism (CH) under stable therapy.

**Patients and Methods:** We enrolled 126 children and adolescents with CH under regular levothyroxine treatment, without comorbidities affecting gastrointestinal absorption or autoimmune diseases. HP status was assessed using the <sup>13</sup>C-urea breath test. Thyroid function (TSH, FT4, FT3, rT3) was evaluated at baseline and after HP eradication. Patients who had used antibiotics, anti-inflammatories, proton pump inhibitors, or H2 blockers in the 30 days prior were excluded. Levothyroxine doses were monitored over a three-year period.

**Results:** At baseline, HP-positive patients had lower FT3 and FT4 levels than HP-negative patients, with no significant differences in TSH. After successful HP eradication (in 28% of patients), 74% showed significant increases in FT3 and rT3. No significant hormonal changes were observed in patients who remained HP-positive. Levothyroxine doses did not significantly differ before and after treatment in either group: in patients who became HP-negative, 2.13 mcg/kg (1.59-2.97) vs. 2.14 mcg/kg (1.65-2.88),  $p = 0.84$ ; in persistent HP-positive, 2.20 mcg/kg (1.67-4.06) vs. 2.21 mcg/kg (1.82-3.13),  $p = 0.79$ .

**Conclusions:** In children and adolescents with CH, HP infection was associated with alterations in the peripheral metabolism of thyroid hormones. This pattern was partially reversed following eradication.

**Conflict of interest disclosure:**

D.M.M. Queiroz: None. F.F. Melo: None. N.T.P. Braga: None. L.V. Marçal: None. F.F.B. Lemos: None. J.P.C. Freire: None. I.N. Silva: None.

**P01.114.**

**PRELIMINARY INSIGHTS FROM A NATIONAL SURVEY ON CURRENT CLINICAL PRACTICES IN THE DIAGNOSIS AND MANAGEMENT OF HELICOBACTER PYLORI INFECTION IN IRELAND**

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**Objective:** The aim of the study was to evaluate current practices, attitudes, and knowledge on the diagnosis and management of *Helicobacter pylori* infection among healthcare professionals in Ireland, in light of the recently published updated Irish guidelines.

**Patients and Methods:** An electronic survey was distributed nationwide to general practitioners, gastroenterologists, registrars, SHOs, and nurses. The survey explored diagnostic strategies, treatment preferences, management of refractory infection, and awareness of the link between *H. pylori* and gastric cancer.

**Results:** A total of 139 clinicians responded: 22% GPs, 40% registrars, 14% SHOs, and 4% consultant gastroenterologists. The urea breath test (65%) and stool antigen test (32%) were the preferred non-invasive diagnostics, while 68% and 63% reported using rapid urease test and histology, respectively. Two weeks' PPI withdrawal was recommended by 60% prior to testing, and four weeks antibiotic withdrawal by 28%. First-line therapy was overwhelmingly PPI, clarithromycin, and amoxicillin (58%) for 14 days (87%), with pantoprazole (41%) as the preferred PPI. Second-line regimens included clarithromycin/metronidazole (32%) and levofloxacin-based therapy (20%), though only 44% pursued endoscopy with culture after two failures. Notably, while 86% recognized the *H. pylori*-gastric cancer link, screening of first-degree relatives was rarely performed (40% never screened), and screening prior to long-term NSAID use was inconsistent.

**Conclusions:** These findings demonstrate generally guideline-aligned practices but highlight gaps in second-line management, antibiotic stewardship, and cancer prevention strategies. Greater dissemination and implementation of the new Irish *H. pylori* guidelines are essential to standardize care, improve eradication success, and reduce gastric cancer risk nationwide.

**Conflict of interest disclosure:**

C. Costigan: None. T. Butler: None. S. Smith: None. D. McNamara: None.

**P01.115.**

**PROINFLAMMATORY EFFECTS OF *HELICOBACTER PYLORI* OUTER MEMBRANE VESICLES (OMVs) ON GASTRIC CELLS VIA TLR2/NF- $\kappa$ B SIGNALING**

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**Objective:** *Helicobacter pylori* secrete OMVs as part of its normal growth both *in vitro* and *in vivo*. These vesicles enhance the virulence of this otherwise poorly invasive bacterium and play a crucial role in the progression of gastric pathologies associated with *H. pylori* infection. Toll-like receptor 2 (TLR2) is a pattern recognition receptor that functions as an innate immune sensor, triggering inflammatory responses to a wide range of microbial and host-derived ligands. Notably, TLR2 has been implicated in promoting tumorigenesis in human gastric cancer. However, the capacity of *H. pylori* OMVs to activate TLR2/NF- $\kappa$ B signaling has not been fully elucidated. The aim of the study was to determine whether *H. pylori* OMVs can induce a proinflammatory response through the TLR2/NF- $\kappa$ B signaling pathway.

**Materials and Methods:** Human gastric epithelial cell lines (AGS and GES-1) were exposed to purified OMVs derived from *H. pylori* strain 26695. A variety of techniques were used, including an NF- $\kappa$ B-NanoLuc reporter assay to measure activation in response to TNF, OMVs, and specific TLR2 ligands; qRT-PCR to quantify mRNA levels of proinflammatory cytokines (IL-8, TNF, IL-6, and IL-1 $\beta$ ); Western blotting to assess TLR2, TLR4, and TLR6 protein expression; and ectopic expression of TLR2 heterodimers (TLR2/6 and TLR2/1).

**Results:** *H. pylori* OMVs induced a robust proinflammatory response in AGS and GES-1 cells, mediated exclusively *via* the TLR2/NF- $\kappa$ B pathway.

**Conclusions:** These findings demonstrate that *H. pylori* OMVs elicit a potent proinflammatory response through TLR2/NF- $\kappa$ B signaling, likely *via* an unidentified factor present within the vesicles. This mechanism may contribute to the development of both gastric and extra-gastric diseases associated with *H. pylori* infection.

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## 2. MICROBIOTA - ROUND 1

### P02.001.

#### TWO CASES OF NEWLY DEVELOPED ULCERATIVE COLITIS FOLLOWING CLINICAL AND ENDOSCOPICAL REMISSION OF ACUTE BACTERIAL COLITIS

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**Introduction:** Although the causal relationship of infectious pathogens to initiation of ulcerative colitis is debatable, some case reports demonstrated the development of ulcerative colitis following acute bacterial enterocolitis. However, it may be unclear whether ulcerative colitis was actually triggered by bacterial infection or became overt by coincidental infectious diarrhea. Therefore, the sequential colonoscopic features as well as clinical manifestations following infectious enterocolitis can be helpful to demonstrate the development of ulcerative colitis triggered by infection.

**Case Report:** Two male patients in their 30's presenting with acute abdominal pain and diarrhea visited our clinic. One patient drank from a fountain and the other had seafood a few days before diarrhea. On colonoscopies, findings of non-continuous extensive colitis with rectal sparing were noted. After antibiotics therapy, complete clinical and endoscopical remissions were achieved within one to three weeks. Six to twelve months later, however, they revisited our clinic presenting with recurrent bloody diarrhea, showing new development of definitive findings of proctitis or rectosigmoiditis, which were endoscopically different from initial findings. Histology of the colonic mucosa revealed chronic inflammation with cryptic abscess and basal lymphoplasmacytosis. Diagnoses of distal ulcerative colitis were made, and oral and local mesalamine therapy was initiated daily. Their symptoms improved promptly, and they have been on maintenance therapy.

**Conclusions:** The sequence of colonoscopic findings as well as clinical symptoms in these cases suggest that bacterial infection may contribute to the development of ulcerative colitis. This supposition should be supported by large-scale prospective clinical trials of patients with acute infectious enterocolitis.

**Conflict of interest disclosure:**

J. Kim: None. W. Kim: None. Y. Choi: None.

### P02.002.

#### CLINICAL AND COLONOSCOPIC FEATURES OF PROCTITIS IN *CHLAMYDIA TRACHOMATIS* POSITIVE PATIENTS MIMICKING ULCERATIVE COLITIS OVER THE PAST 6 YEARS

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**Objective:** *Chlamydia trachomatis* can cause proctitis that closely resembles ulcerative colitis (UC) affecting the rectum. Differential diagnosis is challenging due to its infrequency in clinical practice.

**Materials and Methods:** We reviewed the retrospective medical records of 9 *Chlamydia trachomatis* positive proctitis patients who were initially suspected to have UC based on clinical symptoms at Daehang Hospital, Seoul, from June 2018 to October 2024. Sexually transmitted disease PCR tests from rectal swab specimens were ordered during colonoscopy or after colonoscopy due to atypical mucosal findings.

**Results:** Among the 9 proctitis patients confirmed to have *Chlamydia trachomatis*, four were men and five were women, with a median age of 29.7, ranging from 21 to 38. Bowel symptoms started 3 months ago, ranging from 7 days to 1 year. Chief complaints included anal pain (77.8%), blood or mucus (55.6%), diarrhea (11.1%). Anal sex history could be obtained from 4 patients (3 men and 1 woman). Two patients were misdiagnosed and treated with inflammatory bowel disease at other hospitals. Colonoscopy revealed fine mucosal nodularities in the lower rectum. PCR tests were performed in 4 patients during and 5 patients after colonoscopy.

**Conclusions:** Differential diagnosis of *Chlamydia trachomatis* from UC is very challenging due to its similar symptoms and rectal involvement. Initial suspicion through careful history taking and close observation of rectal mucosal nodularities, along with PCR testing in appropriate cases, could aid in correct diagnosis excluding UC.

**Conflict of interest disclosure:**

J. Kim: None. W. Kim: None. Y. Choi: None.

**P02.003.**

**DIFFERENCES IN GUT MICROBIOTA BASED ON GASTRIC ACID SECRETION: EFFECTS OF *HELICOBACTER PYLORI*-INDUCED GASTRIC MUCOSAL ATROPHY, PROTON PUMP INHIBITOR USE, AND TOTAL GASTRECTOMY**

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**Objective:** We have previously reported that *Helicobacter pylori* (*H. pylori*) infection and subsequent gastric mucosal atrophy influence the gut microbiota. However, the extent to which gastric acid secretion impacts microbial composition under different clinical conditions remains unclear. This study aimed to further investigate the relationship between *H. pylori* infection, gastric acid secretion, and gut microbiota composition by comparing individuals with varying degrees of gastric mucosal atrophy, eradicated *H. pylori* cases, proton pump inhibitor (PPI) users, and individuals who underwent gastrectomy.

**Patients and Method:** A total of 1,056 participants undergoing medical checkups were included, excluding those who had used antibiotics within the past 6 months (n=41). *H. pylori* infection status was determined by serology and stool antigen tests. Gastric mucosal atrophy was assessed based on serum pepsinogen levels, classifying severe and mild atrophy accordingly. Gut microbiota profiles were analyzed from stool samples using 16S rRNA sequencing, and data were evaluated using LEfSe, Animalcules, and MaAsLin2.

**Results:** The study cohort comprised 89 *H. pylori*-positive individuals (11 severe atrophy, 48 mild atrophies, 30 without atrophy), 489 non-infected participants, 197 post-eradication cases, 69 PPI users, and 4 gastrectomy cases. Alpha diversity analysis showed significant differences among groups. Severe atrophy, PPI use, and gastrectomy were associated with similar microbiota alterations, including increased *Streptococcus* and *Lactobacillus* and decreased *Bacteroides*. Post-eradication individuals displayed microbiota profiles comparable to non-infected participants.

**Conclusions:** Severe gastric mucosal atrophy, PPI use, and gastrectomy induce similar gut microbiota changes, suggesting that gastric acid secretion plays a central role in determining gut microbial composition.

**Conflict of interest disclosure:**

C. Iino: None. D. Chinda: None. T. Shimoyama: None.

**P02.005.**

**SMALL INTESTINAL BACTERIAL OVERGROWTH (SIBO) AS AN INDEPENDENT INDICATOR OF LIVER STRESS IN CHRONIC HEPATITIS PATIENTS**

**G.H. BABAYEVA<sup>1</sup>, R.A. HASANOV<sup>1,2</sup>, E.J. ABDULLAYEVA<sup>3</sup>**

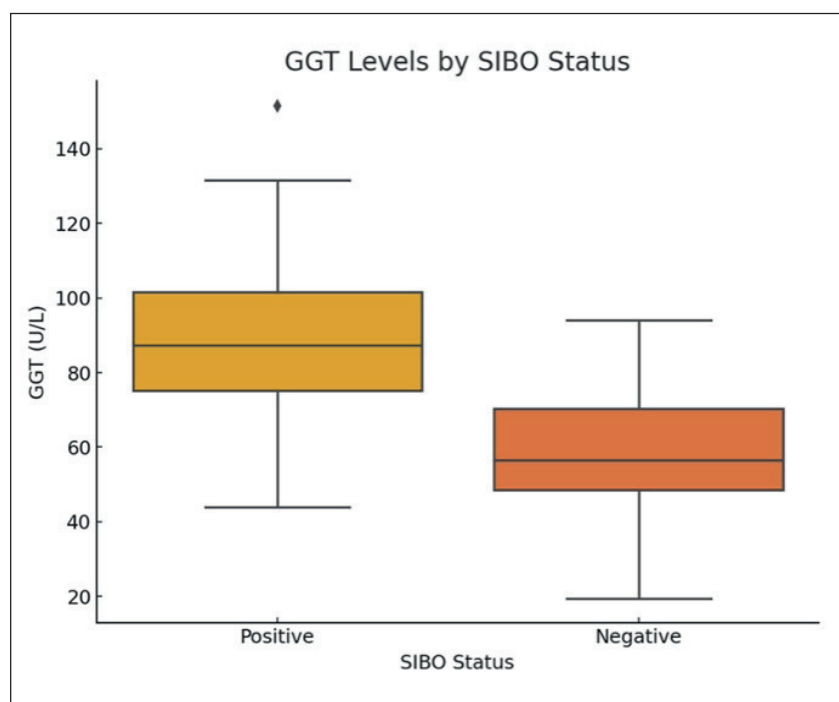
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**Objective:** Chronic hepatitis leads to progressive liver damage, traditionally monitored by fibrosis scores such as FIB-4. However, recent evidence highlights the role of gut microbiota disturbances—especially SIBO—in hepatic inflammation and subclinical stress, potentially undetected by conventional markers. The aim of the study was to assess whether SIBO status independently associates with hepatic stress, irrespective of FIB-4 scores, and to explore its value in improving risk stratification.

**Patients and Methods:** A retrospective cohort study analyzed over 100 patients with HBV or HCV infections. Data included SIBO breath test results, FIB-4 scores, liver enzymes (ALT, AST, GGT, ALP), viral titers, and demographics. Patients were classified by FIB-4 risk categories and SIBO status. Multivariate logistic regression was used to identify independent predictors of liver enzyme abnormalities.

**Results:** Among low-risk FIB-4 patients (<1.3), 38% still tested positive for SIBO, with associated enzyme elevations. SIBO positivity correlated significantly with elevated GGT (mean 92.3 vs. 56.8 U/L,  $p < 0.01$ ), independent of fibrosis stage. Regression models confirmed SIBO status as a predictor of liver stress, beyond traditional fibrosis metrics.

**Conclusion:** SIBO may act as an independent biomarker of hepatic dysfunction in chronic hepatitis, supplementing conventional fibrosis scores. Routine screening for gut dysbiosis could enhance early identification of at-risk patients, even when FIB-4 scores are normal.



**FIGURE 1.** SERUM GAMMA-GLUTAMYL TRANSFERASE (GGT) LEVELS BY SMALL INTESTINAL BACTERIAL OVERGROWTH (SIBO) STATUS. BOX PLOTS DISPLAY GGT LEVELS (U/L) IN INDIVIDUALS WITH (SIBO-POSITIVE) AND WITHOUT (SIBO-NEGATIVE) SIBO. THE MEDIAN GGT LEVEL WAS SIGNIFICANTLY HIGHER IN THE SIBO-POSITIVE GROUP COMPARED TO THE SIBO-NEGATIVE GROUP (MEDIAN: 88 U/L VS. 62 U/L, RESPECTIVELY;  $P = 0.01$ , MANN-WHITNEY U TEST). BOXES REPRESENT THE INTERQUARTILE RANGE (25<sup>TH</sup>–75<sup>TH</sup> PERCENTILE), HORIZONTAL LINES INDICATE THE MEDIAN, WHISKERS EXTEND TO 1.5× THE IQR, AND OUTLIERS ARE PLOTTED AS INDIVIDUAL POINTS.

**Conflict of interest disclosure:**

G.H. Babayeva: None. R.A. Hasanov: None. E.J. Abdullayeva: None.

**P02.006.**

**INTERPLAY BETWEEN SMALL INTESTINAL BACTERIAL OVERGROWTH, LIVER FIBROSIS, AND VIRAL LOAD IN CHRONIC HEPATITIS**

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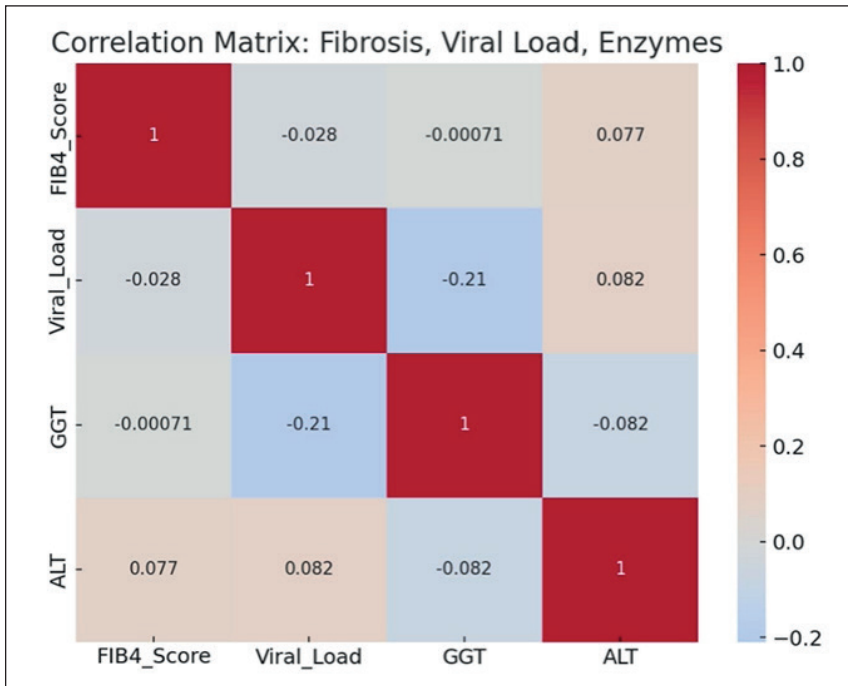
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**Objective:** The gut-liver axis is a critical pathway in liver disease pathogenesis, with microbial dysbiosis increasingly implicated in accelerating fibrosis and modifying viral replication patterns. The aim of the study was to explore the relationship between SIBO positivity, liver fibrosis severity (FIB-4 scores), and viral load in chronic hepatitis patients.

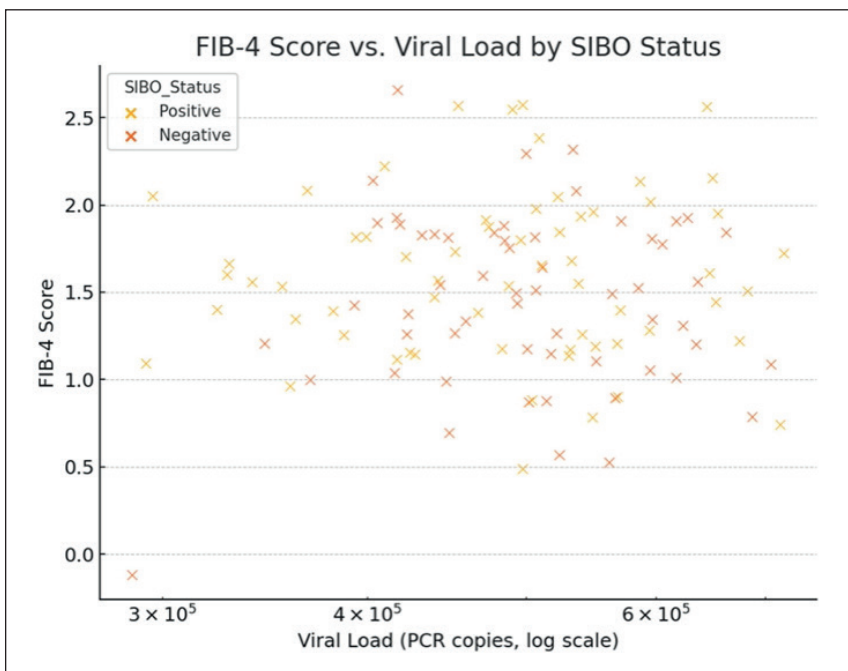
**Materials and Methods:** Clinical and biochemical data from more than 100 individuals with HBV, HCV, or HDV infections were retrospectively analyzed. SIBO breath tests, FIB-4 calculations, liver enzyme levels, and viral titers were compared across SIBO-positive and SIBO-negative groups. Correlations between microbial status, fibrosis scores, and viral load were evaluated.

**Results:** SIBO-positive patients demonstrated significantly higher FIB-4 scores (median 1.87 vs. 1.23,  $p < 0.05$ ) and elevated GGT levels. Moderate positive correlations were found between viral titers and both FIB-4 and GGT levels in SIBO-positive individuals. Although not statistically definitive, these trends point toward an amplifying effect of gut dysbiosis on viral-induced hepatic damage.

**Conclusion:** SIBO may exacerbate liver fibrosis and influence viral dynamics in chronic hepatitis, underscoring the gut microbiota’s role in disease progression. Integrating gut health assessments into hepatitis management could refine prognostication and therapeutic strategies.



**FIGURE 1. CORRELATION MATRIX OF LIVER FIBROSIS, VIRAL LOAD AND ENZYMES.**



**FIGURE 2. FIB-4 SCORE VS. VIRAL LOAD BY SIBO STATUS.**

**Conflict of interest disclosure:**

G.H. Babayeva: None. R.A. Hasanov: None. E.J. Abdullayeva: None.

## P02.007.

### IMAGING AND MICROORGANISM ANALYSES OF THE EFFECTS OF ORAL *BIFIDOBACTERIUM BREVE* INTAKE ON FACIAL SKIN IN FEMALES: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY

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**Objective:** Oral probiotic intake is suggested beneficial for our skin. We aimed to elucidate the effects of oral *Bifidobacterium breve* M-16V intake on skin by analyzing facial images, the skin myco/microbiota and the gut microbiota.

**Patients and Methods:** We conducted a randomized, double-blind, placebo-controlled study. Healthy women aged over 30 years were randomly allocated to either the *B. breve* ( $1 \times 10^{10}$  colony-forming units (CFU)/sachet, two sachets daily) or the placebo group and consumed the corresponding study food for 12 weeks. Facial images were taken at weeks 0, 4, 8 and 12 using VISIA<sup>®</sup> evolution. Stool and skin samples were collected at weeks 0 and 12. The primary outcome was the change in the total VISIA<sup>®</sup> score from baseline.

**Results:** A total of 120 females aged 30-79 years were assigned to the *B. breve* (n=59) or placebo (n=61) group. The total VISIA<sup>®</sup> score worsened in the placebo group at week 8 ( $p=0.029$ ) but not in the *B. breve* group. Compared with that of the placebo group, the brown spot score of the *B. breve* group improved at weeks 4 ( $p=0.013$ ) and 8 ( $p=0.041$ ), and the pore score improved at weeks 4 ( $p=0.013$ ), 8 ( $p=0.041$ ) and 12 ( $p=0.004$ ). Genus-level analysis of the gut microbiota revealed a significant increase in *Blautia* abundance in the *B. breve* group. The frequency of adverse events was not different between the groups.

**Conclusions:** Oral *B. breve* M-16V administration may suppress skin deterioration, including the appearance of brown spots, on the faces of adult females.

#### Conflict of interest disclosure:

Y. Nishikawa: C. Other Research Support (supplies, equipment, receipt of drugs or other in-kind support); Significant; Morinaga Milk Industry Co., Ltd. C. Xu: None. S. Yoshimoto: None. N. Katsumata: None. N. Iwabuchi: None. N. Yanagisawa: None. S. Koido: None. M. Tanaka: None. J. Xiao: None. D. Asaoka: None. T. Ohkusa: None. N. Sato: None.

## P02.008.

### GUT FEELING: EXPLORING THE IMPACT OF MICROBIOTA ON MENTAL HEALTH THROUGH PSYCHOBOTICS - A SYSTEMATIC REVIEW

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**Objective:** The gut microbiota has gained increasing attention for its influence on mental health *via* the gut-brain axis. Disruptions in microbial balance have been linked to psychiatric conditions, such as depression, anxiety, and schizophrenia. Psychobiotics, probiotics and prebiotics used to modulate gut microbiota, have emerged as a potential therapeutic option. This review synthesizes recent evidence on the role of gut microbiota in mental health and evaluates the effectiveness of psychobiotics in treating psychiatric disorders.

**Patients and Methods:** We conducted a systematic search of studies published between 2022 and 2025. Fifteen studies met the inclusion criteria: randomized controlled trials, systematic reviews, and meta-analyses involving adults and investigating the link between gut microbiota and psychiatric disorders, with a focus on psychobiotic interventions. Studies involving non-clinical data or participants under 18 were excluded.

**Results:** Psychobiotics may influence mental health through several mechanisms. They modulate immune function by altering cytokine production, potentially reducing inflammation linked to psychiatric disorders. Additionally, they help regulate neurotransmitters such as serotonin and GABA, crucial for mood balance. Psychobiotics also impact the hypothalamic-pituitary-adrenal (HPA) axis, contributing to improved stress response and potentially mitigating stress-related behavioral symptoms.

**Conclusions:** Psychobiotics offer a promising adjunct to traditional psychiatric treatments. While findings are encouraging, more rigorous, long-term studies are needed to confirm their clinical efficacy and safety. These insights highlight the potential for microbiota-targeted therapies in future mental health care. Furthermore, the integration of psychobiotics into clinical practice could provide a novel, more personalized approach to managing psychiatric disorders, addressing the underlying biological factors contributing to mental health issues.

**Conflict of interest disclosure:**

A.E. Oros: None. D.C. Onit: None. M. Piciu: None. E.L. Popovici: None.

**P02.009.**

**MANAGEMENT AND OUTCOMES OF IMMUNE CHECKPOINT INHIBITOR-ASSOCIATED COLITIS AND DIARRHEA: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**Objective:** Immune checkpoint inhibitors (ICIs) have significantly improved outcomes in oncology but are commonly associated with immune-related adverse events (irAEs), particularly colitis and diarrhea. These toxicities may result in treatment delays or discontinuation, and management remains challenging. Current European guidelines recommend corticosteroids as first-line therapy, with infliximab or vedolizumab in refractory cases. This systematic review and meta-analysis evaluated the incidence, treatment strategies, and clinical outcomes of ICI-induced colitis and diarrhea in adults.

**Patients and Methods:** A systematic search in PubMed, Scopus, and ISI Web of Science was conducted through March 2025. Studies reporting gastrointestinal irAEs, therapeutic interventions, and outcomes were included. Pooled estimates were calculated using the DerSimonian and Laird random-effects model; heterogeneity was assessed with I<sup>2</sup> statistics.

**Results:** Fifty-seven studies (18,935 patients) were analyzed. ICI-related diarrhea and/or colitis occurred in 2,668 patients (14%). Among them, 27% had grade 1-2 toxicity, 43% grade 3-4, and 0.5% grade 5. Most patients (91.3%) were treated: 98% with corticosteroids, 8% with infliximab, and 2% with vedolizumab. Pooled response rates were 47% (95% CI: 40-54%,  $p < 0.001$ ; I<sup>2</sup>=99%) for corticosteroids, 72% (95% CI: 57-87%,  $p < 0.001$ ; I<sup>2</sup>=99%) for infliximab, and 66% (95% CI: 46-85%,  $p < 0.001$ ; I<sup>2</sup>=88%) for vedolizumab. The pooled mortality rate was 1% (95% CI: 0-1%,  $p < 0.001$ ; I<sup>2</sup>=0%).

**Conclusions:** ICI-related gastrointestinal irAEs are frequent and may be severe. While corticosteroids remain the first-line treatment, biologics show high efficacy in steroid-refractory cases. Prompt recognition and timely escalation are key to optimizing outcomes and preserving anticancer efficacy.

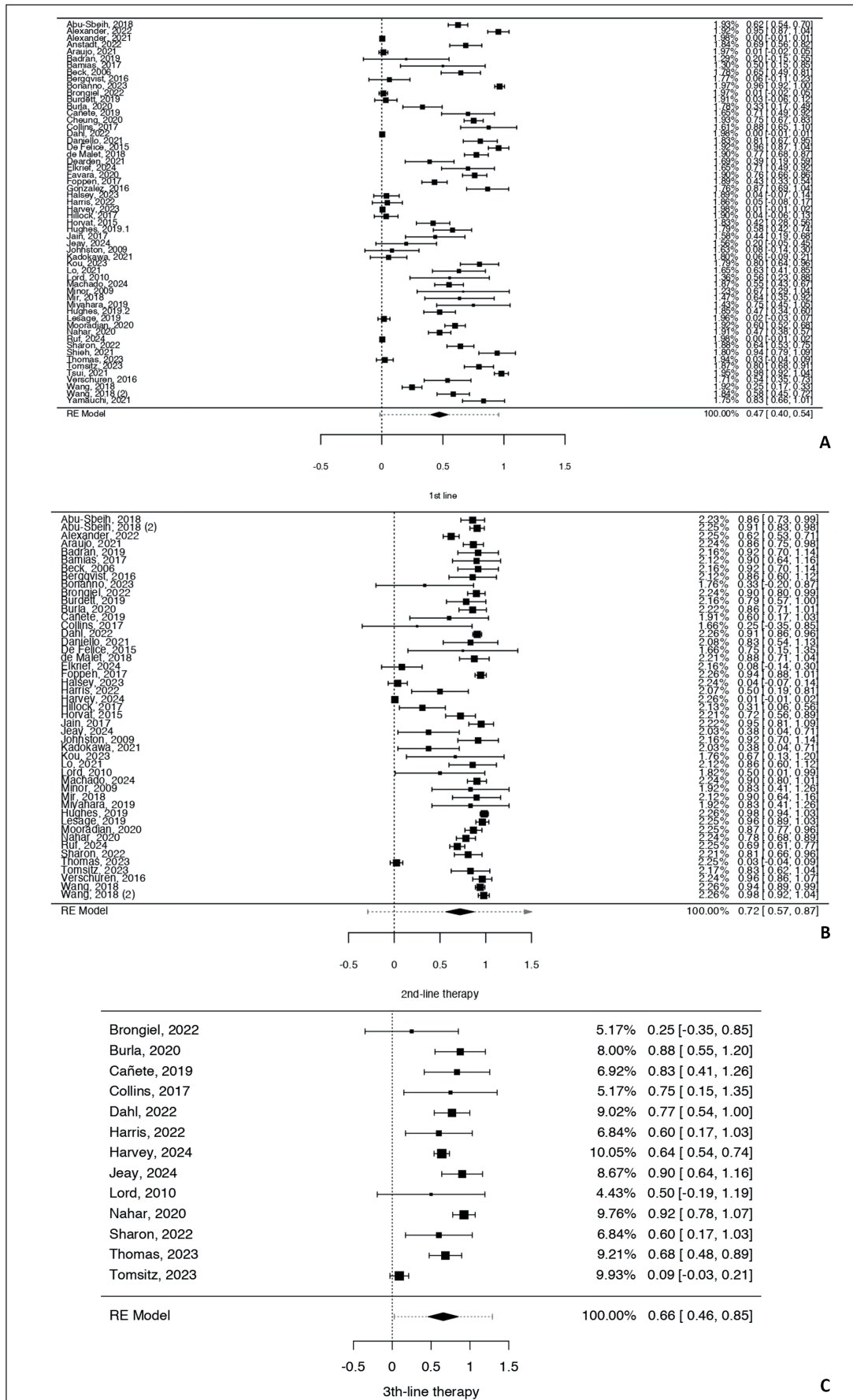


FIGURE 1. FOREST PLOT OF POOLED PREVALENCE RATES OF 1<sup>ST</sup>-LINE (A), 2<sup>ND</sup>-LINE (B), AND 3<sup>RD</sup>-LINE (C) THERAPY FOR COLITIS.

**Conflict of interest disclosure:**

S. Porcari: None. C. Esposito: None. M. Maida: None. A. Severino: None. M. Ferrari: None. C. Nero: None. C. Ciccarese: None. E. Vita: None. E. Palluzzi: None. C. Marchetti: None. V. Salutari: None. F. Ponziani: None. A. Fagotti: None. G. Schinzari: None. R. Iacovelli: None. E. Bria: None. G. Gasbarrini: None. A. Gasbarrini: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Takeda SpA, AbbVie, Sandoz SpA. F. Consultant/Advisory Board; Modest; Eisai Srl, 3P Solutions, Real Time Meeting, Fondazione Istituto Danone, Sinergie Srl, Board MRGE, Sanofi SpA, VSL3. G. Tortora: None. G. Cammarota: F. Consultant/Advisory Board; Modest; Ferring Therapeutics. G. Ianiro: D. Speakers Bureau/Honoraria (speakers bureau, symposia, and expert witness); Modest; Biocodex, Danone, Sofar, Malesci, Metagenics, Tillotts Pharma. F. Consultant/Advisory Board; Modest; Ferring Therapeutics, Giuliani, Malesci, Tillotts Pharma.

**P02.010.****PREVALENCE AND CHARACTERISTICS OF GASTROINTESTINAL SYMPTOMS IN PATIENTS WITH RECURRENT URINARY TRACT INFECTIONS FROM ENTERIC PATHOBIANTS**

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**Objective:** Urinary tract infections (UTIs), especially in their recurrent form (rUTIs), are among the most common bacterial infections. Enteric pathobionts (e.g., *Escherichia coli*, *Enterococcus faecalis*, or *Klebsiella pneumoniae*) account for most cases of rUTIs (E-rUTIs), and gut microbiome impairment is considered to be involved in this pathogenic process. Nevertheless, the prevalence of gastrointestinal symptoms in this population is mostly unknown. Our aim was to assess the prevalence of gastrointestinal symptoms in patients with E-rUTIs referred to our Microbiome clinic.

**Patients and Methods:** We retrieved medical records of patients with E-rUTIs referred to our outpatient Microbiome clinic from April 2021 to December 2024. Collected data included: demographics, gastrointestinal symptoms, known gastrointestinal disorders. We gathered information on pathogens identified through urinary cultures, where available.

**Results:** Overall, 129 patients with a diagnosis of E-rUTI were included (120 females; median age 41 years). *E. coli* was the predominant pathogen isolated from urinary cultures (72) followed by *Klebsiella pneumoniae* (15). In 42 patients, multiple bacteria were identified at urinary cultures. All patients presented with gastrointestinal symptoms: constipation was the most frequently reported (103), followed by bloating (98) and abdominal pain (89). Diarrhea (17) and mixed bowel habits (6) were less frequent.

**Conclusions:** Gastrointestinal symptoms, mainly constipation, bloating and abdominal pain, are widely common in patients with E-rUTIs. These findings support the role of gut microbiome in the pathogenesis of E-rUTIs. Further studies, aimed at evaluating whether the improvement of gastrointestinal symptoms has an impact on the overall management of E-rUTIs are warranted.

**Conflict of interest disclosure:**

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P02.011.

**FECAL MICROBIOTA TRANSPLANTATION FOR THE TREATMENT OF RECURRENT CLOSTRIDIODES DIFFICILE INFECTION: A LONG-STANDING EXPERIENCE OF A REFERRAL CENTER**

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 Università Cattolica del Sacro Cuore, Rome, Italy.

**Objective:** Fecal microbiota transplantation (FMT) is recognized as a highly effective intervention for recurrent *Clostridioides difficile* infection (rCDI). This study aims to assess the efficacy and safety of FMT in patients with rCDI since the start of our FMT program.

**Patients and Methods:** Our aim was to report outcomes of FMT in patients with rCDI treated at our center from June 2013 to September 2024. Enrolled patients were followed up to 90 days after the last FMT. The primary outcome was the clinical resolution of CDI at 8 weeks post-FMT, while secondary outcomes included overall survival at 90 days and safety of FMT. Donor stools were screened following international guidelines. FMT procedures were conducted *via* colonoscopy using a single-donor solution of at least 50 grams of fresh or frozen feces.

**Results:** A total of 374 patients were enrolled (231 female, mean age 71 years). One hundred and ten patients had severe CDI (29.4%), and 15 had severe complicated CDI (4%). Among them, 73 patients had pseudomembranous colitis (19.5%). A sequential FMT protocol was performed in 92 patients (24.6%), resulting in a total of 524 FMT procedures. Overall, 337 patients (90.1%) experienced resolution of CDI. Twenty-five patients (6.6%) died within the follow-up period, with no deaths attributable to FMT. Severe adverse events occurred in 23, and 9 were potentially associated with FMT and/or failure to cure CDI.

**Conclusions:** In the experience of our large-volume FMT center, FMT was a highly effective and safe treatment for rCDI.

**Conflict of interest disclosure:**

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**2. MICROBIOTA - ROUND 2**

P02.012.

**EFFICACY AND SAFETY OF PYRIDOSTIGMINE FOR SEVERE CHRONIC CONSTIPATION REFRACTORY TO FIRST LINE TREATMENTS**

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 Università Cattolica del Sacro Cuore, Rome, Italy.

**Objective:** Functional constipation (FC) and constipation-predominant irritable bowel syndrome (IBS-C) are highly frequent conditions characterized by chronic constipation. The initial management involves dietary and lifestyle modifications and laxative therapy. For patients who do not respond to these interventions, second-line therapies, such as medications with prokinetic effects, are recommended. Pyridostigmine, an anticholinesterase agent commonly used in the treatment of myasthenia gravis and paralytic ileus, might play a role in refractory chronic constipation, but evidence is still not available.

**Patients and Methods:** We carried out a retrospective study involving all patients who met the criteria for severe chronic constipation (1), who were refractory to first-line treatments and who were treated with pyridostigmine in our outpatient gastroenterology clinic from April 2021 to December 2024. We evaluated the improvement in constipation at follow-up, defined as patients having three or more spontaneous bowel movements per week. We also evaluated any improvement in other gastrointestinal symptoms and the safety profile of the treatment.

**Results:** Overall, 110 patients were included in the study. Other gastrointestinal symptoms included bloating (n=88), abdominal pain (n=77), dyspepsia (n=17). Overall, 74 patients experienced an improvement in constipation. Additionally, 51 patients exhibited improvements in other gastrointestinal symptoms: 38/77 patients experienced relief from abdominal pain, 35/88 from bloating, and 10/17 from dyspepsia. Finally, four patients have discontinued therapy due to pyridostigmine intolerance; no severe therapy-related adverse events were observed.

**Conclusions:** In our cohort, pyridostigmine was an effective and safe treatment for IBS-C and chronic idiopathic constipation.

**Conflict of interest disclosure:**

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**P02.013.**

**CLINICAL OUTCOMES OF CANCER PATIENTS WITH GASTROINTESTINAL IMMUNE-RELATED ADVERSE EVENTS DURING THERAPY WITH IMMUNE CHECKPOINT INHIBITORS: EXPERIENCE OF A TERTIARY CARE OUTPATIENT GASTROENTEROLOGY CLINIC**

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**Objective:** Immune checkpoint inhibitors (ICI) are widely used in the management of numerous solid tumors; however, their use may be associated with immune-related adverse events (irAEs), particularly gastrointestinal ones such as colitis and diarrhea. In February 2025 we opened a dedicated clinic, within our Gastroenterology outpatient service, to manage gastrointestinal irAEs during ICI therapy. Our aim was to evaluate characteristics and outcomes of patients referred to our designated clinic.

**Patients and Methods:** All patients referred to our dedicated clinic for the management of gastrointestinal irAEs associated with ICI were clinically evaluated, treated with standard-of-care therapy in accordance with European Guidelines and followed up for at least 8 weeks. We collected data on patient demographics, cancer type and therapy, diarrhea severity (graded *via* CTCAE), interruption of ICI, outcomes of colonoscopy (if performed), treatment of gastrointestinal irAEs, time to resolution of diarrhea, and whether ICI therapy was resumed.

**Results:** We included 14 patients affected by ICI-related diarrhea or colitis (grade 1: n=2, grade 2: n=9, grade 3: n=2; grade 4: n=1). Ten patients interrupted immunotherapy due to ICI-related diarrhea. After standard-of-care treatment, 12 patients experienced diarrhea grade 1 or lower. Mean time to resolution of diarrhea was 4.2 weeks. Five patients resumed ICI after a mean of 4 weeks. No patients experienced any adverse events related to the standard-of-care treatment.

**Conclusions:** Despite being preliminary, our experience shows that patients managed in a dedicated clinic for gastrointestinal irAEs associated with ICI experience acceptable outcomes, however further studies are warranted.

**Conflict of interest disclosure:**

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**P02.014.****TYPES OF INTESTINAL MICROBIOME CHANGES IN MULTIPLE SCLEROSIS AND THEIR RELATIONSHIP WITH DISEASE SEVERITY**

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**Objective:** The pathogenesis of the autoimmune demyelinating disease multiple sclerosis (MS) is considered in the conception of the microbiota-gut-brain axis. In this case, intestinal dysbiosis can be a trigger factor that cause worsening of MS, gastrointestinal and psycho-emotional disorders in MS. We studied the changes in the intestinal microbiome and their relationship with the severity and symptoms of the disease.

**Patients and Methods:** The intestinal microbiome (IM) of 117 patients with MS and 19 healthy volunteers was studied using the 16S rRNA gene sequencing method with V3-V4 primers. The presence of anxiety and depression was determined using the Hospital Anxiety and Depression Scale (HADS), the presence of gastrointestinal disorders-using the developed questionnaire.

**Results:** In the cohort of patients with MS, 6 clusters of changes in the IM were identified. The lowest severity (EDSS 2.7) was observed in patients with the phylum ratio *Bacillota*:*Bacteroidota*:*Verrucomicrobiota* - 50:20:20 (%). Severe MS (EDSS > 3.7; PP-MS, SP-MS) was characterized by the ratios *Bacillota*:*Verrucomicrobiota*:*Actinomycetota* - 50:30:10 (%) or *Bacillota*: *Bacteroidota* - 30:50 (%). Gastrointestinal disorders were common in all types of IM changes. Fingolimod therapy had the most adverse effect on IM composition. In patients with signs of depression, a decrease of *Faecalibacterium prausnitzii* and *Roseburia spp.* was noted.

**Conclusions:** The identified IM patterns in patients reflect the heterogeneous clinical phenotype of MS, as well as the severity of the disease, the impact of the therapy and indicate that IM may represent a new pathogenetic target for immunomodulation. The work was completed according to the State order FSBSI «IEM»: № FGWG-2025-0018.

**Conflict of interest disclosure:**

E. Chernyavskaya: None. N. Baryshnikova: None. A. Matsulevich: None. G. Bisaga: None. I. Abdurasulova: None.

**P02.015.****FEASIBILITY OF GASTRIC MICROBIOME PROFILING VIA GASTRIC MUCOSAL SWAB: COMPARISON WITH BIOPSY**

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**Objective:** Endoscopic tissue biopsy is the most widely used method for gastric microbiome analysis. However, it is invasive and may inadequately represent the full microbial landscape due to limited mucosal coverage. This pilot study evaluated the feasibility of a gastric mucosal swab (GMS) technique as a less invasive alternative capable of broader mucosal coverage and improved microbial yield.

**Patients and Methods:** Eight patients undergoing upper endoscopy were enrolled. From each patient, paired biopsy and GMS samples were collected from both the antrum and body. Microbiome profiling was conducted *via* 16S rRNA gene sequencing (V3-V4 region) using next-generation sequencing. Blank swabs and swabs passed through the endoscope channel were included to assess contamination. *Helicobacter pylori* infection was evaluated through rapid urease testing, histology, and/or serologic testing.

**Results:** In total, 47 samples were analyzed (8 blanks, 7 channel-passed swabs, 16 swabs, and 16 tissue specimens). Overall, GMS samples demonstrated significantly higher alpha diversity than biopsy samples (observed ASVs: 174 vs. 59.5,  $p < 0.01$ ; Shannon index: 4.79 vs. 4.09,  $p < 0.01$ ). In *H. pylori*-positive patients, GMS showed higher richness and diversity (ASVs: 154 vs. 59.5,  $p < 0.01$ ; Shannon: 4.45 vs. 2.38,  $p = 0.02$ ) and *H. pylori* remained the most discriminating genus in both sampling methods in linear discriminant analysis. In *H. pylori*-negative patients, GMS also showed higher richness (ASVs: 180 vs. 53.5,  $p < 0.01$ ), although Shannon indices were not significantly different (5.03 vs. 4.64,  $p = 0.15$ ).

**Conclusions:** These findings suggest that GMS provides broader, reliable microbial profiling and may serve as a feasible, less invasive alternative to conventional gastric biopsy.

**Conflict of interest disclosure:**

G. Park: None. H. Chung: None.

**P02.016.**

**GUT MICROBIOTA MODULATION AS A NOVEL THERAPEUTIC APPROACH FOR IMMUNE-CHECKPOINT INHIBITORS-RELATED DIARRHEA AND COLITIS**

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**Objective:** Immune checkpoint inhibitors (ICIs) have marked a breakthrough in cancer treatment by increasing overall survival; however, they often lead to immune-related adverse events (irAEs), particularly diarrhea and colitis. Current guidelines for grade  $\geq 2$  gastrointestinal irAEs recommend discontinuing ICIs and using immunosuppressants, which may lead to worse outcomes. Given the emerging role of the gut microbiota in the pathogenesis of gastrointestinal irAEs, this study aimed to assess the safety and efficacy of therapeutic microbiome modulation as an alternative strategy for managing ICI-related diarrhea and colitis.

**Patients and Methods:** We enrolled patients affected by ICI-related diarrhea or colitis referred to our Microbiome Clinic from January-2023 to March-2025. After clinical evaluation, patients were stratified according to severity of diarrhea (graded *via* CTCAE), received microbiome-modulating therapy and were followed-up for  $\geq 8$  weeks. We collected data about patient demographics, cancer type and therapy, severity of diarrhea, ICI suspension, time to resolution and ICI resumption.

**Results:** We included 42 patients with ICI-related diarrhea or colitis (grade 1: n=10, grade 2: n=16, grade 3: n=15; grade 4: n=1). Thirty patients had to interrupt ICI. Multi-strain probiotics were administered to 27 patients, rifaximin to 22. Twenty-one patients needed systemic steroids. Seven patients with refractory colitis were successfully treated with FMT. Diarrhea improved to grade  $\leq 1$  in 39 patients after a mean of 8 weeks, and 9 patients were able to resume ICI. No adverse events occurred.

**Conclusions:** Therapeutic modulation of gut microbiota appears to be a safe and effective approach for ICI-related diarrhea and colitis, though further well-designed studies are needed.

**Conflict of interest disclosure:**

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**P02.017.****TIMERESOLVED PLASMA AND STOOL METABOLOMIC RESPONSES TO FECAL MICROBIOTA TRANSPLANTATION**

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**Objective:** While fecal microbiota transplantation (FMT) reliably restores gut microbial composition, the accompanying systemic metabolic consequences are incompletely defined. Determining early metabolomic responses could clarify host-microbiome crosstalk and provide noninvasive biomarkers of therapeutic success.

**Materials and Methods:** Untargeted LCMS metabolomics profiled paired plasma and stool samples from recipients at baseline, one week, and four weeks postFMT ( $n = X$ ). After quality control 543 plasma and 242 stool features remained. Data were logtransformed, Pareto-scaled, and interrogated with paired  $t$ -tests ( $\geq 2$ fold,  $p < 0.05$ ), PLS-DA, hierarchical clustering, and chemical class enrichment in MetaboAnalyst.

**Results:** QC replicates clustered tightly, confirming analytical robustness. PLS-DA trajectories separated time-points in both matrices, most strongly in plasma. Four plasma metabolites—PC(18:4/20:5), 2Hepteneoylglycine, a benzyldithiazabicyclo diketone, and (2Z)-2(3hydroxybenzylidene)heptanal—changed significantly by week 1; two additional species, 16Hydroxykaurane17,19diyl diacetate and a purine nucleoside analogue, emerged by week 4, while a branched chain amino acid derivative persisted. Stool profiles drifted toward donor-like composition but displayed few  $\geq 2$ fold changes. Enrichment highlighted altered glycerophospholipids and sulfur heterocycles in plasma, versus modest bile acid and aromatic amino acid perturbations in stool.

**Conclusions:** FMT elicits rapid, systemwide metabolic reprogramming detectable in plasma within one week, whereas fecal metabolite shifts are subtler, indicating circulating metabolites may serve as earlier biomarkers of engraftment efficacy.

**Conflict of interest disclosure:**

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**P02.018.****THE INFLUENCE OF CYTOSTATICS ON GUT MICROBIOTA OF CRC PATIENTS STUDIED *IN VITRO***

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**Objective:** Colorectal cancer (CRC) is one of the leading types of oncopathology all over the world. Cytostatics are usually used for the treatment of CRC. The effect of chemotherapy on the patient's gut microbiota is not completely investigated. The aim was to study the influence of cytostatics on gut microbiota of CRC patients on the *in vitro* model.

**Patients and Methods:** Fecal samples (FS) of patients with CRC were cultivated with 5-fluorouracil, oxaliplatin or without cytostatics in thioglycolate Medium for 24 hours in 37° C. The obtained specimens were studied by qPCR (26 bacterial taxa), 16S rRNA sequencing and bacteriologically.

**Results:** The cultivation of FS in the presence of cytostatics did not change the relative abundance of marker oncogenic bacteria (*Fusobacterium nucleatum* and *Parvimonas micra*) but lead to an increased biodiversity of microorganisms compared to the control. In addition, culturing FS with 5-fluorouracil and oxaliplatin caused an increase of the *Enterobacteriaceae* representation and a decrease the number of enterococci, lactobacilli and bifidobacteria in individual manner for different patients.

**Conclusions:** Cultivation of patients' FS in the presence of cytostatics allows to predict possible changes in the composition of the gut microbiota during chemotherapy. As a result of 5-fluorouracil and oxaliplatin treatment, an increase in the population of opportunistic bacteria of the *Enterobacteriaceae* family and inhibition of beneficial bacteria growth should be expected. Suggested approach makes the selecting of probiotics and autoprobiotics more relevant during chemotherapy.

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#### P02.019.

#### CULTURABLE BACTERIAL SPECIES IN STOMACH BIOPSY SAMPLES FROM HIGH-RISK GASTRIC CANCER AREAS OF COLOMBIA IN A LONGITUDINAL (20- AND 26-YEAR) STUDY

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**Objective:** Chronic infection with *H. pylori* is a primary cause of gastric cancer. Non-*H. pylori* bacteria, also present in the stomach, have been linked to modulating gastric cancer development. Non-*H. pylori* microbes responsible for disease progression warrant further investigation.

**Patients and Methods:** Antral gastric biopsies were harvested from patients who either progressed histologically (progressors, n=15) or remained histologically stable (non-progressors, n=17) between years 20 and 26. There were 16 male and 16 female patients with ages from 33-60 years. Gastric biopsy samples were subjected to aerobic, anaerobic, and microaerobic culture conditions followed by species identification using sequencing of 16S rRNA genes.

**Results:** A total of 46 genera were isolated from 64 biopsy samples, and 35 genera were isolated from more than one sample. 0-15 genera were isolated from each biopsy sample. No significant differences in the numbers of genera isolated from progressors or non-progressors. No significant differences in genera isolated from male or female. *Streptococcus* was the most frequently isolated genus from 81% of the samples; *S. salivarius* (53%), *S. parasanguinis* (44%) and *S. mitis* (34%) were the most isolated species in *Streptococcus* genus. *Veillonella* was isolated from 52% and *Rothia* from 48% of the samples. *Enterococcus*; *Klebsiella*; *Serratia*; *Stenotrophomonas*; *Raoultella* and *Pseudomonas* were cultured from significantly more 20-year biopsies; *Schaalia* and *Prevotella* were cultured from more 26-year biopsies. *H. pylori* were isolated from 40% at 20-years and from 19% at year 26.

**Conclusions:** Gastric microbiotas vary over time and non-*H. pylori* species may contribute to the progression of gastric disease. The high abundance of gastric *Streptococcus* species requires further investigation.

**Conflict of interest disclosure:**

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**P02.021.**

**PROTEUS MIRABILIS UREASE: NEW ROLES IN GUT-BRAIN COMMUNICATION AND PARKINSON'S DISEASE PATHOGENESIS**

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**Objective:** Intestinal dysbiosis has been associated to Parkinson's disease (PD) and we hypothesize that *Proteus mirabilis* plays a relevant role in this process. This study investigates the role of *P. mirabilis* urease (PMU) in PD pathogenesis using *in vivo* and *in vitro* models.

**Materials and Methods:** Wild-type mice received intraperitoneal PMU (20 µg/day) for seven days. Transgenic PD-model mice (tgNM) received 10 µg twice weekly for three weeks. Behavioral assessments and brain immunoassays were performed. Behavioral tests and immunoassays of brain homogenates were conducted. *In vitro* experiments, Caco2 and HEK293 cells were treated with purified PMU at doses equivalent to those used *in vivo* and analyzed for pro-inflammatory responses.

**Results:** *In vivo*, the results suggest that PMU induces depressive-like behavior, increases levels of TNF-α, IL-1β, and caspase-9, and decreased α-synuclein and tyrosine hydroxylase. Preliminary data in tgNM mice indicated that PMU was detected in the liver, intestine, and brain tissues. *In vitro*, PMU increased cell permeability, reactive oxygen species (ROS), and pro-inflammatory cytokines (TNF-α, IL-1β) in Caco2 and HEK293 cells. It also altered α-synuclein aggregation, forming fragmented structures. As PMU is present in outer membrane vesicles (OMVs) released by *P. mirabilis*, future *in vivo* studies will use OMVs from urease-negative strains to confirm PMU's specific role in neurodegeneration.

**Conclusions:** The data suggests that PMU exerts pro-inflammatory and neurotoxic effects, potentially contributing to neuroinflammation and behavioral changes compatible with the early stages of PD. This work strengthens the involvement of *Proteus mirabilis* in PD pathophysiology possibly through the disruption of the gut-brain axis

**Conflict of interest disclosure:**

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**P02.022.**

**INVESTIGATING THE ROLE OF GUT MICROBIOTA IN GLIOBLASTOMA DEVELOPMENT**

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**Objective:** Glioblastoma is the most common and aggressive brain tumor in adults, with a median survival of 14-15 months and frequent therapeutic failure. Understanding the factors involved in its initiation, progression, and treatment resistance is critical. This study investigates the gut-brain axis, focusing on the potential role of the gut bacterial microbiota in glioblastoma progression. The microbiota, a diverse community of gut-residing bacteria, plays an important role in brain disorders such as Parkinson's and Alzheimer's diseases. Recent studies suggest it may also influence glioblastoma, but

the underlying mechanisms remain unclear. This project aims to: a) assess the impact of bacterial microbiota depletion on glioblastoma progression and b) explore how gut bacteria influence glioblastoma *via* immune modulation *in vivo* and microbiota-derived metabolites *in vitro*.

**Materials and Methods:** C57BL/6 mice were implanted or not with murine glioblastoma stem cells (mGB2) and treated or not with antibiotics to deplete their microbiota. Tumor growth was monitored by bioluminescence imaging. Immune cell infiltration was analyzed *via* RNAscope multiplex staining. *In vitro*, the effects of two microbiota-associated metabolites, serotonin and butyrate, were tested on murine (mGB2) and patient-derived (P3) glioblastoma stem cells on proliferation and invasion.

**Results:** Results showed reduced tumor progression in microbiota-depleted mice, associated with decreased macrophage and T-cell infiltration. *In vitro*, serotonin enhanced proliferation but reduced invasion, while butyrate inhibited proliferation yet increased invasion.

**Conclusions:** These findings suggest that the bacterial microbiota influences glioblastoma progression, potentially by promoting immune cell recruitment and providing metabolites that tumors exploit to support its growth.

**Conflict of interest disclosure:**

S. Lavielle: None. M. Lemaitre: None. D. Bomont: None. T. Daubon: None. O. Martin: None.

**P02.023.**

**TAXONOMIC PROFILING OF GUT MICROBIOTA IN LIVER TRANSPLANT CANDIDATES USING A GALAXY BASED METAGENOMIC WORKFLOW**

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**Objective:** Microbiome alterations are increasingly linked to clinical outcomes in liver transplant (LT) recipients and candidates. While functional microbiome analysis (e.g., metabolomics) offers detailed insight, taxonomic classification remains a valuable preliminary approach, especially using publicly available sequencing data.

**Materials and Methods:** We analyzed 10 fecal metagenomic samples from liver transplant candidates available in the PRJNA1039781 project. Raw paired-end reads were processed *via* the Galaxy platform. After trimming with Trimmomatic, sequences were classified with Kraken2 using a standard reference database. A preliminary snapshot of microbial taxa was obtained by extracting the first 50 rows from the Kraken2 classification file and visualized through a pie chart.

**Results:** The preliminary taxonomy revealed a mix of gut commensals, including *Oscillospiraceae bacterium*, *Blautia wexlerae*, and *Phocaeicola vulgatus*, alongside other less abundant taxa such as *Faecalibacterium prausnitzii* and *Bacteroides caccae*. These taxa were not ranked by abundance but represent the earliest assigned classifications.

**Conclusions:** This small-scale, Galaxy-based metagenomic workflow demonstrates the feasibility of rapid taxonomic profiling using public LT datasets. While limited in depth and lacking metabolomic or clinical correlations, this approach offers an accessible entry point for microbiome exploration in transplant populations.

**Conflict of interest disclosure:**

R. Ragozzino: None.

### 3. CANCER - ROUND 1

#### P03.001.

#### RISK FACTORS FOR LATERAL MARGIN POSITIVITY FOLLOWING ENDOSCOPIC SUBMUCOSAL DISSECTION IN PATIENTS WITH EARLY GASTRIC CANCER

##### S. KANG

Chungnam National University college of medicine, Daejeon, Korea, Republic of.

**Objective:** The risk factors for lateral margin positivity (LM+) in patients undergoing endoscopic submucosal dissection (ESD) for early gastric cancer (EGC) are not yet well established. The role of subepithelial (SE) spread of cancer in contributing to LM+ remains unclear.

**Patients and Methods:** A study was conducted at a tertiary medical center in Daejeon, South Korea, targeting patients who underwent ESD for EGC between January 2011 and December 2021, those with recorded LM+. Patients who underwent ESD for EGC at the same institution in 2019 and achieved curative resection were selected as the control group.

**Results:** During the study period, a total of 21 patients were diagnosed with LM+ and 227 patients were enrolled in the control group. In univariate analysis, differentiation, Lauren classification, lesion size, and discoloration changes were identified as risk factors for LM+ (chi-square test,  $p < 0.05$ ). In multivariate analysis, lesion size was the only significant risk factor (logistic regression,  $p < 0.05$ ). The mean length of SE spread in the LM+ group was significantly longer than that in the control group. Furthermore, SE spread exceeding 5 mm was associated with an increased risk of LM+ (OR=15.077,  $p = 0.019$ , logistic regression).

**Conclusions:** Larger lesion size and longer SE spread were risk factors of LM+. Therefore, these factors should be carefully considered during ESD.

##### Conflict of interest disclosure:

S. Kang: None.

#### P03.002.

#### FACTORS INFLUENCING CLINICAL OUTCOMES AFTER ENDOSCOPIC METAL STENT PLACEMENT FOR MALIGNANT GASTROESOPHAGEAL JUNCTION OBSTRUCTION

##### C. CHOI

Pusan National University Yangsan Hospital, Yangsan, Korea, Republic of.

**Objective:** Endoscopic self-expandable metal stent (SEMS) placement is a common palliative treatment for malignant gastroesophageal junction (GEJ) obstruction. However, clinical outcomes vary. This study aimed to evaluate predictors of success following SEMS placement.

**Patients and Methods:** We retrospectively analyzed 83 patients who underwent SEMS placement for malignant GEJ obstruction. Baseline characteristics, tumor and endoscopic features, and clinical outcomes were assessed. Predictors of clinical outcomes were analyzed using univariate and multivariate models.

**Results:** The clinical success rate was 75.9% (63/83). Univariate analysis identified poor performance status (ECOG 2-3), vomiting, carcinomatosis peritonei, extraesophageal metastasis, elevated blood urea nitrogen ( $>26$  mg/dL), and high serum creatinine ( $>1.0$  mg/dL) as risk factors for clinical failure. Multivariate analysis confirmed poor performance status (ECOG 2-3) as the sole independent predictor ( $p = 0.041$ , OR = 4.651, 95% CI = 1.067-20.277). Double-layered SEMS showed a low migration rate (3.6%). Delayed complications included perforation (3.6%) and bleeding (7.2%).

**Conclusions:** Poor performance status is a significant predictor of clinical failure after SEMS placement for malignant GEJ obstruction. Careful patient selection and alternative palliative strategies should be considered for high-risk patients.

##### Conflict of interest disclosure:

C. Choi: None.

P03.003.

**ROLE OF *HELICOBACTER PYLORI* INFECTION IN IMMUNOTHERAPY RESPONSE IN GASTRIC AND ESOPHAGOGASTRIC JUNCTION CANCERS**

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Hôpital Universitaire de Bruxelles, Bruxelles, Belgium.

**Objectives:** *H. pylori* is a world-wide infection that can cause gastric cancer. CPS is a pathological score indicating a potential response to immunotherapy. The influence of *H. pylori* infection on the efficacy of immunotherapy is controversial: according to the latest Chinese clinical study, *H. pylori* infection seems to be a favorable factor for advanced gastric cancer treated with immunotherapy as it was associated with a significant longer progression-free survival (PFS). Another recent American study compared patients with metastatic gastric cancer receiving ICI with and without *H. pylori* infection and observed a significant worse prognosis associated with the infection in both PFS and overall survival (OS). In our study, we aim to evaluate the impact of *H. pylori* on the efficacy of immunotherapy.

**Patients and Methods:** We retrospectively collected data from twenty-one patients, from 2020 to 2023, with advanced upper GI adenocarcinoma (stomach, lower esophagus or eso-gastric junction), a known *H. pylori* status, a known CPS score, and who received immunotherapy. We compared the OS and PFS in the patients under immunotherapy depending on their *H. pylori* status.

**Results:** The comparison of PFS (*p*-value 0.226) and OS (*p*-value 0.083) depending on their *H. pylori* status was not found to be significantly different among the twenty-one patients with advanced upper GI adenocarcinoma receiving immunotherapy.

**Conclusions:** In this study, we did not find a significant difference in OS and PFS in patients with advanced upper GI adenocarcinoma under immunotherapy.

**Conflict of interest disclosure:**

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P03.005.

**THE ROLE OF YAP/TAZ SIGNAL PATHWAY IN *HELICOBACTER* INDUCED GASTRIC CARCINOGENESIS**

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**Objective:** *Helicobacter pylori* is a major cause of gastric diseases including gastric cancer. YAP (Yes-associated protein) and TAZ (WW domain-containing transcription regulator) have been shown to promote tumorigenesis, cell proliferation, and apoptosis resistance when overexpressed or dysregulated. The contribution of YAP/TAZ in gastric cancer remains poorly understood.

**Materials and Method:** Gastric organoids, gastric cancer cell lines (AGS, MKN74, GES-1), and *H. pylori* strains Hp 60190 [CagA (+) and CagA (-)] were used. TCGA data were analyzed to compare YAP/TAZ expression in human gastric cancer. Single-cell RNA-seq data were used to examine YAP/TAZ expression across gastric epithelial cell subtypes. Gastric cells were transfected to overexpress YAP, and expression of CDX2 and changes in ZO-1 localization were evaluated. Mist1-creERT2; YAP/TAZ double knockout mice were used to model chronic infection and metaplasia. Histological and immunohistochemical analyses were performed to assess SPEM, oxyntic atrophy, and inflammation.

**Results:** Using public data from The Cancer Genome Atlas (TCGA), we observed that YAP expression is elevated in gastric cancer, correlating with worse prognosis. YAP overexpression induced CDX2, a marker of intestinal metaplasia, and promoted cell motility through rearrangement of ZO-1, a tight junction protein. To investigate the role of YAP/TAZ in gastric cancer development, we used Mist1-creERT2; YAP/TAZ knockout mice and infected them with *H. felis*. The knockout mice showed resistance to chief cell trans-differentiation, oxyntic atrophy, inflammation, and the development of gastric metaplasia following infection, suggesting that YAP/TAZ are essential for these changes.

**Conclusions:** These results reveal that YAP/TAZ play a critical role in Helicobacter-mediated gastric carcinogenesis.

**Conflict of interest disclosure:**

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**P03.006.**

**USEFULNESS OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR THE INDEFINITE BIOPSY PATHOLOGY**

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**Objective:** Endoscopic biopsy is an essential tool for the histologic diagnosis. But the pathologic findings are not always concordant with the endoscopic diagnosis. We evaluated the role of endoscopic submucosal dissection (ESD) for the pathologic diagnosis when the pathologic diagnosis is discrepant from the endoscopic diagnosis.

**Patients and Methods:** We evaluated 21 patients (21 endoscopic lesions) with indefinite initial pathology discrepant from the endoscopic diagnosis in Inje University Seoul Paik Hospital, Seoul, Korea. We performed ESD for the final diagnosis. We compared pathologic diagnosis of initial forceps biopsies with final ESD specimens.

**Results:** Final pathologic diagnosis was definite by ESD specimens in all cases. The complete en bloc resection rate for neoplastic lesions was 100% and complications were ESD-related bleeding 5%, perforation 0%. The final pathologic diagnosis of the ESD specimens were inflammatory fibroid polyp in 7 patients (33.3%), adenoma in 5 patients (23.8%), adenocarcinoma in 4 patients (19%), hyperplastic polyp/gastritis in 2 patients (9.5%), MALT lymphoma, lymphangioma, leiomyoma in each patient (4.8%).

**Conclusions:** ESD is considered a safe and effective diagnostic tool for endoscopic lesions of cases which the forceps biopsy pathology is discrepant from the endoscopic diagnosis especially when cancer is suspected.

**Conflict of interest disclosure:**

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**P03.008.**

**TREATMENT OUTCOMES AND PROGNOSIS OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR EARLY GASTRIC CANCER IN ELDERLY PATIENTS: A SINGLE-CENTER, RETROSPECTIVE STUDY**

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Fukuoka Tokushukai Hospital, Kasuga-shi, Fukuoka, Japan.

**Objective:** With the aging population, there is increasing demand for endoscopic submucosal dissection (ESD), which is less invasive than surgery. We aimed to evaluate the treatment outcomes and prognosis of ESD for early gastric cancer in elderly patients at our institution.

**Patients and Methods:** A total of 130 patients who underwent ESD for early gastric cancer between July 2018 and July 2022 at our hospital were included in the analysis. Patients were divided into two groups: the elderly group (68 patients; men aged  $\geq 75$  years, women aged  $\geq 80$  years) and the non-elderly group (62 patients; men aged  $< 75$  years, women aged  $< 80$  years). Patient background, lesion background, procedure background, curability based on the eCura system, and prognosis were examined.

**Results:** The median age was 81 years in the elderly group and 70 years in the non-elderly group ( $p < 0.001$ ). The use of antithrombotic agents was significantly higher in the elderly group (42.6% vs. 25.8%,  $p = 0.033$ ). There were no significant differences in lesion background between the groups. The

perforation rate was significantly lower in the elderly group (4.4% vs. 21.0%,  $p = 0.006$ ). There was no significant difference in curability. Additionally, the median follow-up period did not differ significantly between the groups (1186 days vs. 1209 days), and no significant difference was observed in overall survival rates (log-rank test,  $p = 0.68$ ).

**Conclusions:** ESD for early gastric cancer in elderly patients at our institution demonstrated comparable safety, curability, and prognosis to that in non-elderly patients.

**Conflict of interest disclosure:**

Y. Yagi: None. H. Katayama: None. N. Moriyama: None. S. Noda: None. Y. Fukuda: None. K. Nakamichi: None.

**P03.009.**

**PROGNOSTIC INSIGHTS: IDENTIFYING CRITICAL FACTORS IN EARLY-ONSET GASTRIC CANCER OVER A DECADE – THE EOGC-PROGNOSIS TRIAL**

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**Objective:** Early-onset gastric cancer (EOGC) has been increasing globally and demonstrates advanced stage of disease with poor prognosis. This study aimed to identify risk factors, clinicopathological features and survival analysis in patients with EOGC.

**Patients and Methods:** Patients undergoing upper gastrointestinal endoscopy at GI unit, Department of Medicine, Thammasat University, Thailand were enrolled between January 2014 and November 2024. Baseline characteristics, laboratory results, clinicopathological findings and treatment outcomes were collected and extensively reviewed.

**Results:** During 2014-2024, there were 237 patients with gastric cancer. The mean age of patients with gastric cancer was 60.9 years and 53.6% were males. There were 54 EOGC patients (22.8%) with mean age of 40.9 years, and 66.7% of patients were males. The prevalence of *H. pylori* infection was comparable between early-onset and late-onset group (57.4% vs. 63.4%,  $p=0.426$ ). Multivariate analysis demonstrated that male gender, family history of gastric cancer, diffuse-type GC, and dyspepsia as presenting symptom were significantly associated with EOGC compared to late-onset GC with OR 1.95 (95%CI=1.03-3.70,  $p=0.042$ ), OR=7.80 (95%CI=1.45-42.07,  $p=0.017$ ), OR=3.23 (95%CI=1.56-6.69,  $p=0.002$ ), and OR=1.99 (95%CI 1.02-3.88,  $p=0.044$ ), respectively. Diffuse-type GC was significantly higher in age group of 40-49 years (76.3% vs. 23.7,  $p=0.006$ ). Time trend of GC incidence progressively increased from 16.7% before 2012 to 42.9% in 2024. One-year mortality rate in EOGC patients was substantially higher than late-onset GC (79.6% vs. 62.8%,  $p=0.021$ ).

**Conclusions:** Early-onset gastric cancer demonstrates aggressive features with advanced stage of disease and poor prognosis. Symptoms suggestive of gastric cancer in younger patients should be investigated aggressively to accelerate early detection and prompt management for better outcomes.

**TABLE 1. DEMOGRAPHIC DATA OF PATIENTS WITH EARLY-ONSET AND LATE-ONSET GC.**

Risk Factors	Chronic gastritis (N = 993)	Gastric cancer (N = 237)	Odds ratio (95% CI)	p-value
Gender (% Male)	557 (56.1)	127 (53.6)	1.11 (0.83-1.47)	0.485
Age (years ± SD)	62.2 ± 13.7	60.9 ± 14.5	N/A	0.194
>50 years (%)	814 (82.0)	183 (77.2)	0.74 (0.53-1.05)	0.094
<i>H. pylori</i> infection (%)	329 (33.1)	147 (62.0)	3.30 (2.46-4.42)	<0.001
Underlying disease (%)				
None	608 (61.2)	168 (70.9)	1.54 (1.13-2.10)	0.006
Diabetes mellitus	208 (20.9)	40 (16.9)	0.77 (0.53-1.11)	0.162
Hypertension	408 (41.1)	74 (31.2)	0.65 (0.48-0.88)	0.005
Dyslipidemia	376 (37.9)	46 (23.6)	0.51 (0.37-0.70)	<0.001
Cardiovascular disease	57 (5.7)	12 (5.1)	0.88 (0.46-1.66)	0.684
Chronic kidney disease	70 (7.0)	16 (6.8)	0.96 (0.54-1.68)	0.871
FH of gastric cancer (%)	5 (0.5)	7 (3.0)	6.01 (1.89-19.12)	0.002
Smoking (%)	109 (11.0)	76 (32.1)	1.47 (1.04-2.08)	<0.001
Alcohol drinking (%)	153 (15.4)	83 (35.0)	2.96 (2.05-4.01)	<0.001

**TABLE 2. MULTIVARIATE ANALYSIS OF CLINICAL FACTORS AND DEVELOPMENT OF GASTRIC CANCER.**

Risk Factors	Odds Ratio (95% CI)	p-value
<i>H. pylori</i> infection	3.39 (2.49-4.61)	<0.001
Hypertension	0.86 (0.58-1.29)	0.463
Dyslipidemia	0.53 (0.36-0.80)	0.003
Smoking	3.79 (2.36-6.09)	<0.001
Alcohol	1.94 (1.23-3.06)	0.004

**Conflict of interest disclosure:**

N. Kongphakdee: None. N. Aumpan: None. P. Bongkotvirawan: None. P. Smitthakorn: None. V. Mahachai: None. R. Vilaichone: None.

## P03.010.

### UNRAVELING THE MYSTERY OF YOUNG GASTRIC CANCER PATIENTS IN ASEAN: A LARGE LONGITUDINAL STUDY FROM LOW PREVALENCE AREA OF GASTRIC CANCER (YOUNG-GC-ASEAN TRIAL)

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<sup>1</sup>Thammasat University, Pathumthani, Thailand, <sup>2</sup>Oita University, Oita, Japan.

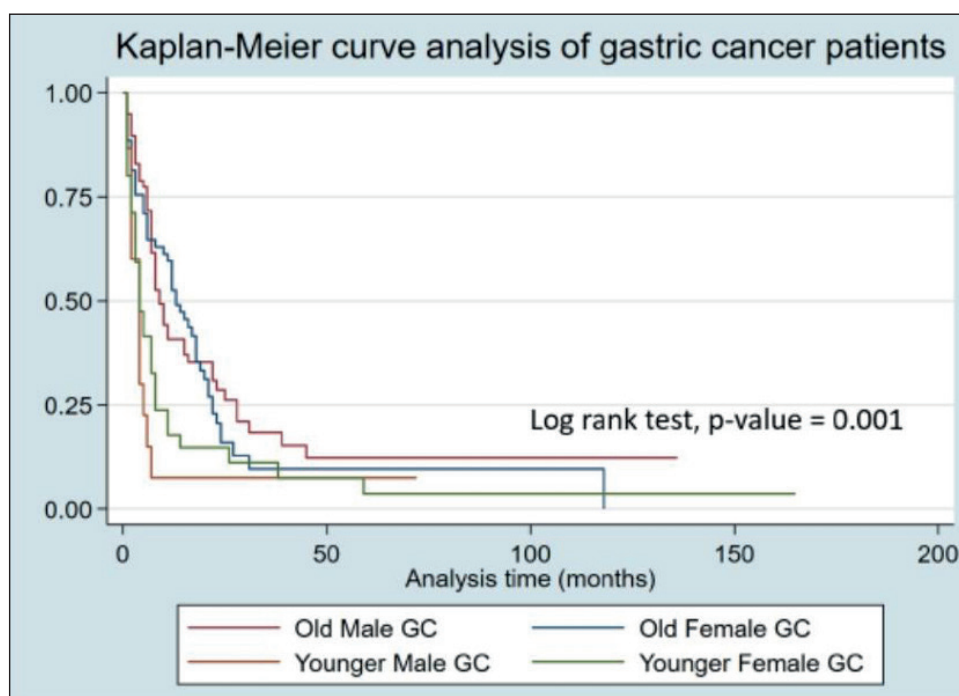
**Objective:** Gastric cancer (GC) remains global health concern. This study aims to examine clinical characteristics, survival outcomes, and prognostic factors of young GC patients in ASEAN.

**Patients and Methods:** Data were analyzed from patients diagnosed with gastric cancer at tertiary care center in Thailand between 2007 and 2024. Comprehensive literature review was conducted, encompassing gastric cancer studies from other low-prevalence countries in ASEAN countries between 2000-2024. Young GC was defined as gastric cancer occurring in individuals younger than 50 years.

**Results:** Total of 3,239 gastric cancer patients from low-prevalence regions were included in this study. Young GC accounted for 16.6% (539/3,239) of cases. Dyspepsia (65.5%), weight loss (61.8%), and gastrointestinal bleeding (36.4%) were the common symptoms. The majority of young GC cases were diagnosed at advanced stage (98.2%). Among the countries studied, Thailand (38.6%), the Philippines (22.2%), and Vietnam (17.7%) reported the highest prevalence of young GC. Diffuse-type GC accounted for 48.9% to 74.5% of cases. Notably, this study identified female gender and age  $\leq 50$  years as significant poor prognostic factors for 1-year survival (OR 2.29; 95% CI: 1.23-4.24,  $p = 0.009$  and OR 3.89; 95% CI: 1.62-9.38,  $p = 0.002$ , respectively). The overall 5-year survival rate for young GC ranged from 4.3% to 24%.

**Conclusions:** Thailand, Philippines, and Vietnam had the highest prevalence of young GC in ASEAN. Most young GC cases were diagnosed at advanced stages, resulting in poor prognosis. Targeted actions focusing on cancer prevention and early detection are essential to improve outcomes for this aggressive cancer.

**FIGURE 1.**  
FEMALE GENDER  
AND AGE  $\leq 50$  YEARS  
HAD SIGNIFICANT  
POOR PROGNOSTIC  
FACTORS FOR 1-YEAR  
SURVIVAL THAN  
FEMALE AND MALE  
WITH AGE  $> 50$  YEARS



**Conflict of interest disclosure:**

R. Vilaichone: None. V. Mahachai: None. N. Aumpan: None. P. Bongkotvirawan: None. Y. Yamaoka: None.

## P03.011.

**ASSOCIATION BETWEEN BLOOD UREA NITROGEN LEVELS AND DELAYED BLEEDING AFTER GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION****B. KIM**<sup>1</sup>, **S. KIM**<sup>2</sup>, **J. KIM**<sup>1</sup><sup>1</sup>Chung-Ang University Hospital, Seoul, Korea, Republic of, <sup>2</sup>Chung-Ang University Gwangmyeong Hospital, Gwangmyeong-si, Korea, Republic of.

**Objective:** Endoscopic submucosal dissection (ESD) is a widely accepted treatment for early gastric cancer and adenoma, but it is often accompanied by post-ESD bleeding. In this study, we evaluated the association between elevated blood urea nitrogen (BUN) levels 24 hours after ESD and post-procedural bleeding. Additionally, we investigated whether an increase in BUN level is associated with artificial gastric ulcers classified as high-risk by the Forrest classification during second-look endoscopy (SLE) following ESD.

**Patients and Methods:** We analyzed data from patients who underwent ESD for early gastric cancer or gastric adenoma. Baseline characteristics, endoscopic findings, and blood test results were collected for each enrolled patient.

**Results:** A total of 424 patients were included in the study. Second-look endoscopy performed one day after ESD identified 44 post-ESD lesions classified as high-risk and 385 lesions as low-risk according to the Forrest classification. Artificial gastric ulcers classified as high-risk were significantly associated with increased rates of post-ESD bleeding. Elevated BUN levels at 24 hours post-ESD were significantly associated with high-risk Forrest classification ulcers observed during SLE ( $p=0.003$ ).

**Conclusions:** A significant increase in BUN levels after ESD may indicate the development of post-ESD bleeding. Since BUN is easy to measure, it may serve as an early and practical marker to identify patients at risk of high-risk Forrest classification ulcers, thereby helping to predict post-ESD bleeding.

**Conflict of interest disclosure:**

B. Kim: None. S. Kim: None. J. Kim: None.

## P03.012.

**DISPARITIES IN *H. PYLORI*-RELATED GASTRIC CANCER AWARENESS AND MANAGEMENT AMONG AZERBAIJANI PHYSICIANS: A NATIONAL CROSS-SECTIONAL SURVEY****G.H. BABAYEVA**<sup>1</sup>, **Z.A. NASIBOVA**<sup>1,2</sup>, **R.A. HASANOV**<sup>1,3</sup>, **E.E. MAMMADOV**<sup>1,4</sup><sup>1</sup>Azerbaijan State Advanced Training Institute for Doctors named after A. Aliyev, Baku, Azerbaijan,<sup>2</sup>State Agency of Mandatory Health Insurance, Baku, Azerbaijan, <sup>3</sup>German Hospital, Baku, Azerbaijan,<sup>4</sup>MediLand Hospital, Baku, Azerbaijan.

**Objective:** *Helicobacter pylori* infection remains the most significant modifiable risk factor for gastric cancer worldwide. In Azerbaijan, a country with a notable incidence of gastric malignancy, physician knowledge and practice patterns regarding *H. pylori* management are critical to cancer control efforts. However, disparities in clinical behavior across specialties may undermine prevention strategies. The aim of the study was to assess inter-specialty differences in awareness, diagnostic behavior, and treatment practices concerning *H. pylori* infection among Azerbaijani healthcare providers and to identify systemic barriers to effective risk-based management.

**Materials and Methods:** A nationwide cross-sectional survey was administered to gastroenterologists, internists, pediatricians, and family physicians. The questionnaire covered familiarity with *H. pylori*-associated pathology, diagnostic timing, first-degree relative screening practices, recognition of precancerous gastric lesions, and endoscopic surveillance criteria.

**Results:** While 95% of gastroenterologists and 72.5% of internists recognized *H. pylori* as a carcinogen, only 56.6% of pediatricians and 32% of family physicians demonstrated comparable awareness. Testing and treatment of infected patients' relatives were infrequent across all groups. Despite high theoretical interest in gastric cancer screening, pessimism regarding feasibility, infrastructure limitations, and ambiguity about referral pathways persist among practitioners.

**Conclusions:** The findings underscore a substantial knowledge-practice gap in the primary care sector regarding *H. pylori*-related cancer prevention. Addressing this disparity requires targeted continuing education, consensus guidelines, and enhanced referral systems. Integration of *H. pylori* screening into national cancer prevention strategies could yield measurable public health benefits.

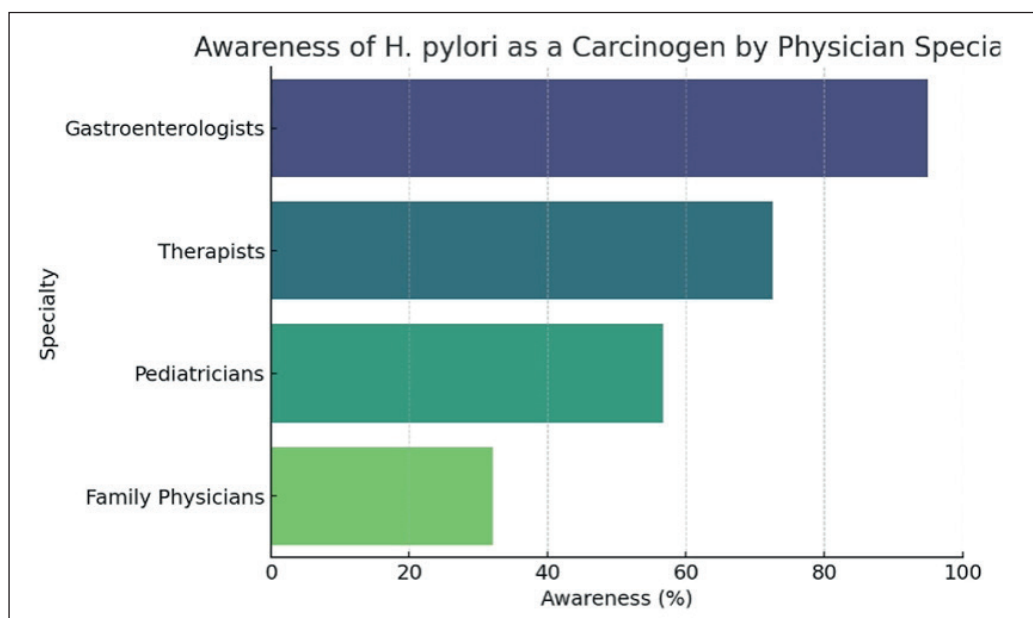


FIGURE 1. AWARENESS OF *H. PYLORI* AS A CARCINOGEN BY PHYSICIAN SPECIALTY.

**Conflict of interest disclosure:**

G.H. Babayeva: None. Z.A. Nasibova: None. R.A. Hasanov: None. E.E. Mammadov: None.

**P03.013.**

**BRIDGING THE GAP BETWEEN GASTRIC CANCER BURDEN AND SCREENING READINESS IN AZERBAIJAN: EPIDEMIOLOGICAL CONTEXT AND PHYSICIAN SURVEY INSIGHTS**

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<sup>4</sup>MediLand Hospital, Baku, Azerbaijan.

**Objective:** Gastric cancer constitutes a major public health challenge in Azerbaijan, ranking among the top three malignancies in males and within the top five across the general population. Yet, organized screening initiatives remain underdeveloped, and clinical readiness among physicians varies widely. The aim of the study was to synthesize recent cancer incidence data with physician-reported diagnostic and surveillance practices for gastric cancer precursors, with the aim of informing national screening policy development.

**Material and Methods:** Population-level cancer incidence data were extracted from Globocan 2020. Concurrently, a structured survey targeting Azerbaijani physicians was conducted, evaluating familiarity with gastric precancerous lesions, *H. pylori*-related disease progression, biopsy protocols, and surveillance practices for atrophic gastritis and intestinal metaplasia.

**Results:** Gastric cancer accounted for 8.9% of all new cancer diagnoses in 2020. Among men, it was second only to lung cancer in incidence. Survey responses revealed substantial heterogeneity in risk stratification and surveillance strategies, with notable deficiencies in family physician and pediatrician awareness. The interest in establishing a structured screening pathway was high, though infrastructural and logistical concerns were prominent.

**Conclusions:** There is a critical disconnection between gastric cancer burden and the current capacity for early detection in Azerbaijan. These findings support the need for piloting regionally adapted screening models focused on *H. pylori* detection and surveillance of high-risk gastric pathology. Strategic investment and international collaboration will be key to implementing scalable, evidence-based solutions.

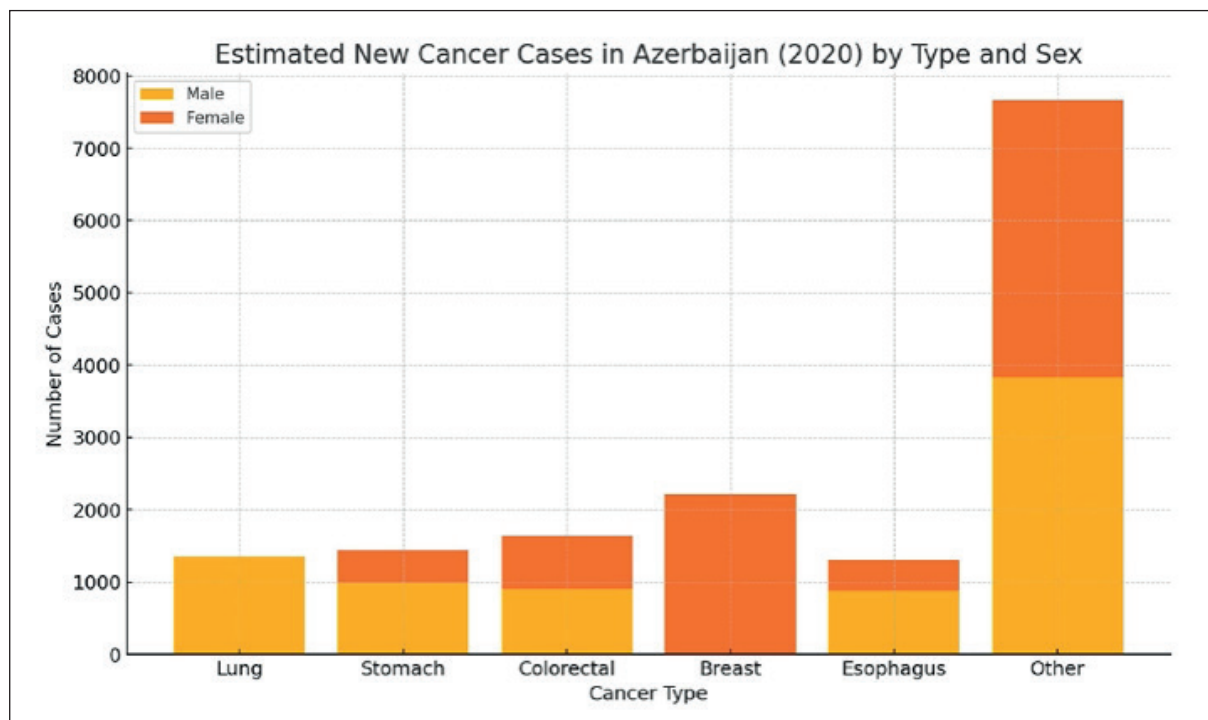


FIGURE 1. ESTIMATED NEW CANCER CASES IN AZERBAIJAN (202) BY TYPE AND SEX.

**Conflict of interest disclosure:**

G.H. Babayeva: None. H.I. Ibrahimli: None. Z.A. Nasibova: None. R.A. Hasanov: None. E.E. Mammadov: None.

**P03.014.**

**CHANGES IN BODY COMPOSITION AND CLINICAL OUTCOMES FOLLOWING ENDOSCOPIC SUBMUCOSAL DISSECTION VS. TOTAL GASTRECTOMY IN PATIENTS WITH PROXIMAL EARLY GASTRIC CANCER**

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**Objective:** The relationship between changes in skeletal muscle following endoscopic submucosal dissection (ESD) vs. total gastrectomy (TG) in patients with proximal early gastric cancer (EGC) remains unclear. This study aimed to investigate the clinical outcomes and skeletal muscle mass changes between ESD and TG in patients with proximal EGC.

**Patients and Methods:** We retrospectively reviewed 329 patients who underwent either ESD (n=127) or TG (n=202) for cT1N0M0 gastric cancer in the upper third of the stomach between 2015 and 2019 at a tertiary care center. The skeletal muscle index (SMI), visceral/subcutaneous fat, and abdominal circumference were measured preoperatively, and at 1 and 3 years after surgery, using computed tomography.

**Results:** No significant differences were observed between the two groups with respect to overall survival ( $p=0.266$ ), recurrence-free survival ( $p=0.079$ ), or disease-specific survival ( $p=0.24$ ). The recurrence rate was four (3.1%) in the ESD group and two (0.9%) in the TG group. Patients in the ESD group showed more preserved SMI ( $p<0.001$ ), visceral/subcutaneous fat ( $p<0.001$ ), and abdominal circumference ( $p<0.001$ ) at 1 and 3 years after surgery, compared to the TG group. Sarcopenia had a significant impact on survival, with 5-year OS rates being lower in patients with preoperative sarcopenia (85.3% vs. 95.6%,  $p=0.005$ ). Multivariate analysis revealed that the prognostic nutritional index was significantly associated with OS (hazard ratio, 0.86; 95% confidence interval: 0.75-0.99,  $p=0.03$ ).

**Conclusions:** Although OS was comparable between the ESD and TG groups, ESD was associated with better preservation of skeletal muscle and visceral/subcutaneous fat.

**Conflict of interest disclosure:**

G. Kim: None. S. Shin: None. Y. Lee: None. S. Lee: None. H. Kim: None.

## 3. CANCER - ROUND 2

### P03.015.

#### SUICIDE MORTALITY BY CLINICAL STAGE IN PATIENTS WITH GASTRIC CANCER: A NATIONWIDE POPULATION-BASED COHORT STUDY

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**Objective:** This study aimed to evaluate suicide risk in patients with gastric cancer based on the Surveillance, Epidemiology, and End Results (SEER) stage classification and to identify factors associated with increased suicide risk.

**Patients and Methods:** Using the Cancer Public Library Database of Korea, we conducted a population-based, retrospective cohort study of patients diagnosed with gastric cancer between 2012 and 2019. Patients were classified into localized, regional, and distant stages according to the SEER staging system. Suicide mortality was compared among SEER stages and subgroups stratified by age, sex, comorbidities, socioeconomic factors, and year of diagnosis.

**Results:** Among 218,491 patients analyzed, 755 (0.35%) died by suicide during a median follow-up period of 3.93 years (0.88 per 1,000 person-years). Compared with the localized stage, the hazard ratio for suicide mortality was 2.06 (95% confidence interval [CI], 1.72-2.46) in the regional stage and 3.80 (95% CI, 2.84-5.08) in the distant stage after adjusting for age, sex, comorbidities, socioeconomic factors, and initial treatment modality. Suicide incidence was higher in males, older patients, and those with lower incomes. The association between advanced SEER stage and suicide risk remained consistent across subgroups, including diagnostic periods, with no significant temporal variation ( $p = 0.59$ ).

**Conclusions:** Suicide mortality increases with advancing gastric cancer stages, underscoring the need for mental health screening and interventions in oncological care. Prevention strategies should target patients diagnosed at advanced clinical stages.

TABLE 1. Suicide mortality according to gastric cancer SEER stage.

SEER stage	N	Suicide death, N	Duration, person-years	IR per 1000 person-years	HR (95% CI)				
					Model 1	Model 2	Model 3	Model 4	Model 5
Localized	146271	431	664544.78	0.65	1 (Ref.)	1 (Ref.)	1 (Ref.)	1 (Ref.)	1 (Ref.)
Regional	47290	213	166273.75	1.28	1.94 (1.65-2.29)	1.97 (1.67-2.32)	1.95 (1.65-2.30)	1.94 (1.65-2.29)	2.06 (1.72-2.46)
Distant	24930	111	28024.23	3.96	5.29 (4.25-6.59)	5.45 (4.38-6.78)	5.37 (4.32-6.69)	5.36 (4.30-6.67)	3.80 (2.84-5.08)

**Conflict of interest disclosure:**

B. Kim: None. K. Han: None. S. Cho: None.

**P03.016.****DOXORUBICIN LOADED POLYLACTIDE NANOPARTICLES FUNCTIONALIZED HISTAMINE PROMOTE APOPTOSIS OF HUMAN GASTRIC CANCER CELLS AGS**

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<sup>1</sup>BioMedChem Doctoral School of the UL and Lodz Institutes of the Polish Academy of Sciences, Lodz, Poland, <sup>2</sup>Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences, Lodz, Poland, <sup>3</sup>University of Lodz, Faculty of Biology and Environmental Protection, Department of Immunology and Infectious Biology, Lodz, Poland.

**Objective:** *Helicobacter pylori*-Hp is one of the main leading causes of gastric cancer-GC due to several mechanisms which maintain chronic inflammation and trigger the disruption of gastric mucosa homeostasis. Late diagnosis due to lack of evident symptoms can limit the effectiveness of GC treatment, which is often linked to drug resistance development. The use of novel nanoparticle-NP formulations can improve the pharmacokinetic profile of therapeutic agents and promote targeted delivery, while diminishing the side effects of systemic treatment.

**Materials and Methods:** The PLA synthesis was proceeded with stannous octate or Histamine (His) as a catalyst, depending on the desired end groups. The NPs were prepared by nanoprecipitation. The encapsulation efficiency and drug release were investigated by UV-Vis. The AGS cell line was cultured and stimulated with PLA-OH, PLA-DOX, PLA-His, PLA-His-DOX, His-DOX or DOX at 1 µg/ml concentration for 24, 48, 72h. The influence of experimental conditions on cellular processes was investigated by testing oxidative stress, DNA damage, apoptosis, cell proliferation, ICAM-1, cell integrity and migration.

**Results:** Tested NPs, except for PLA-OH, influenced cell integrity and migration. The NPs composed with His/DOX increased the level of ICAM-1 disposition (24h), oxidative stress (24h), cell apoptosis (24h) and CC3 production (48h). DNA damage was significantly elevated only in the presence of DOX (24h), and this effect was correlated with diminished proliferative activity.

**Conclusions:** NPs functionalized with His, containing DOX presented the most significant cytotoxic effect and strong influence on tested cellular processes. That concludes the potential synergistic effect of DOX and His in tested nanoformulations.

**Conflict of interest disclosure:**

P. Jaroniek: None. M. Brzeziński: None. M. Chmiela: None. W. Gonciarz: None.

P03.017.

**AN ARTIFICIAL INTELLIGENCE SYSTEM FOR DETECTING AND DIAGNOSING ESOPHAGEAL SQUAMOUS CELL CARCINOMA AND PRECANCEROUS LESIONS USING ENDOSCOPIC IMAGES AND VIDEOS**

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<sup>1</sup>Seoul National University hospital, Seoul, Korea, Republic of, <sup>2</sup>Ainex Co., LTD., Seoul, Korea, Republic of, <sup>3</sup>Seoul National Bundang University hospital, Gyeonggi-do, Korea, Republic of.

**Objectives:** Esophageal squamous cell carcinoma (ESCC) has a poor prognosis in advanced stages, highlighting the need for early detection. We developed a convolutional neural network (CNN)-based AI model to detect ESCC and premalignant lesions using endoscopic images and videos.

**Patients and Methods:** We collected 13,230 endoscopic esophageal images, including both white light and narrow band images from 1,864 patients at Seoul National University Hospital between January 2013 and November 2022. The dataset included 7,304 images of dysplasia and ESCC, 4,330 benign lesions, and 1,596 normal esophagus images. Data were split randomly into training, validation, and test sets in a 7:2:1 ratio. For external validation, 26 videos of ESCC, dysplasia, and benign lesions were prospectively collected between June 2022 and May 2024. The model was trained, internally validated, and evaluated using both test images and video datasets.

**Results:** After training, the model achieved accuracies of 90.83% for cancer detection in validation dataset and 90.95% in test dataset. For the validation dataset, sensitivity, specificity, positive predictive value, and negative predictive value for cancer detection of AI system were 92.87%, 87.76%, 91.93%, 89.13% respectively. For the test dataset, sensitivity, specificity, accuracy, positive predictive value, and negative predictive value were 93.81%, 86.80%, 91.18%, 90.61%. The area under receiver operating characteristic curve for AI system were 0.9594 for validation dataset and 0.9640 for test dataset.

**Conclusions:** This AI model demonstrated high sensitivity and specificity for detecting and diagnosing ESCC and dysplasia. This system has the potential to assist endoscopists in diagnosing ESCC, which can easily be overlooked, in real-time practice.

**Conflict of interest disclosure:**

Y. Lee: None. S. Lee: None. J. Jeon: None. J. Park: None. M. Park: None. M. Park: None. C. Shin: None. M. Oh: None. S. Kim: None. S. Cho: None.

P03.018.

**LONG TERM OUTCOMES AND RECURRENCE OF GASTRIC NEUROENDOCRINE TUMORS: A SINGLE-CENTER STUDY**

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The Catholic University of Korea, Seoul, Korea, Republic of.

**Objective:** Gastric neuroendocrine tumors (GNETs) are rare, and their clinical characteristics and long-term outcomes remain incompletely defined. This study aimed to investigate the clinical features and long-term prognosis of GNETs in a single institution.

**Materials and Methods:** This retrospective study included 44 patients with GNETs who underwent endoscopic or surgical treatment at Seoul St. Mary's Hospital from April 2013 to January 2023. Baseline characteristics, recurrence rates, associated factors, and overall survival rates were analyzed.

**Results:** Of the 44 patients initially diagnosed with GNETs, 31 (70.5%) were Grade 1, 12 (27.3%) were Grade 2, and 1 (2.3%) was Grade 3. Surgical treatment was performed in 4 cases (9.1%), while the remaining tumors were managed with mostly endoscopic resection. The overall 5-year survival rate was 100%. Eight patients (18.2%) experienced recurrence, with four demonstrating metachronous local recurrence. Recurrence was observed 1 to 4.1 years after initial treatment. Two of the recurrent cases had initial vertical margin involvement. No significant relationship was noted between recurrence and atrophic gastritis, intestinal metaplasia, or *Helicobacter pylori* infection.

**Conclusions:** Most GNETs in this cohort were low-grade tumors, and the overall prognosis was favorable. Patients presenting risk factors for recurrence, including margin positivity, may benefit from closer surveillance and shorter follow-up intervals.

**TABLE 1. THE CHARACTERISTICS OF THE LESION RECURRENT AFTER ENDOSCOPIC RESECTION.**

	Single Multiple	Grade	Site (Axial)	Site (Circum- ferential)	Size (mm)	Depth	Resection margin involve- ment	LVI	Stage	Follow up (years)	Gastrin (pg/mL)	Ki-67 index (%)	Recur- rence type	Time to recurrence
ESD	Single	G2	Body	AW	15	SM	Absent	Absent	1	8	677.91	2-3%	Local	1 year
ESD	Multiple	G1	Body, Fundus	GC, PW	12	SM	Absent	Absent	1	10	674.98	1%	Local	1 year
ESD	Single	G1	Body	GC	15	SM	Vertical	Absent	1	11	998.75	2%	Local	1.2 years
ESD	Multiple	G1	Body, Antrum	GC	15	SM	Absent	Absent	1	4	771.76	unknown	Local	4.1 years
ESD	Multiple	G1	Body, Antrum	LC	21	SM	Vertical	Absent	1	5	292.92	2%	Local	1 year
ESD	Multiple	G1	Body, Cardia	AW, LC, PW, GC	11	SM	Absent	Absent	1	8	356.56	1%	Local	1.3 years

**Conflict of interest disclosure:**

Y. Cho: None. I. Kim: None. D. Kang: None. J. Park: None.

**P03.019.**

**CLINICOPATHOLOGIC SIGNIFICANCE OF EZRIN EXPRESSION IN GASTRIC CARCINOMA AND ITS ASSOCIATION WITH *HELICOBACTER* INFECTION**

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**Objective:** Ezrin belongs to the ezrin/radixin/moesin protein family, which functions as a membrane organizer and linker between the plasma membrane and the cytoskeleton. Ezrin may play a key role in tumor cell invasion and metastasis. However, its expression in relation to *Helicobacter pylori* infection and gastric cancer has rarely been reported. This study aimed to investigate the clinicopathologic significance of Ezrin expression in gastric carcinoma and to evaluate the effect of *H. pylori* infection on Ezrin expression in the gastric mucosa.

**Materials and Methods:** Immunohistochemical staining for Ezrin was performed on 113 gastric carcinoma tissues and paired adjacent non-tumorous tissues. Additionally, 30 gastric mucosal samples obtained before and after *H. pylori* eradication were analyzed. Ezrin expression was assessed and compared with clinicopathologic parameters.

**Results:** Ezrin expression scores were significantly higher in gastric carcinoma tissues compared to adjacent non-tumorous tissues. Increased Ezrin expression was associated with lymphatic invasion and advanced N and TNM stages. Furthermore, higher Ezrin expression correlated with poorer survival outcomes. In AGS gastric carcinoma cell line, Ezrin expression increased in response to both the presence and duration of *H. pylori* infection. However, Ezrin expression in the gastric mucosa did not significantly change after *H. pylori* eradication.

**Conclusions:** Ezrin expression may serve as a prognostic indicator in gastric carcinoma. The influence of *H. pylori* on Ezrin expression in gastric mucosa warrants further investigation.

**Conflict of interest disclosure:**

S. Kim: None. H. Choi: None.

P03.020.

VAGINAL MICROBIOME IN PATIENTS WITH ENDOMETRIAL CANCER

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**Objective:** The incidence of endometrial cancer (EC) rises worldwide. Recent studies have emphasized the role of microbiota in EC. This study aimed to identify the features of the vaginal microbiota in patients with EC for screening purposes and evaluation of therapy effectiveness.

**Patients and Methods:** We included patients with the thickened endometrium on ultrasound and/or abnormal uterine bleeding. Samples were collected before the final histopathological diagnosis. None of the patients had received menopausal hormone therapy previously. Vaginal samples from patients (n=32, aged 59-69) with EC were studied bacteriologically and through 16S rRNA sequencing.

**Results:** The bacteriology revealed decreased lactobacilli, with *Lactobacillus crispatus* found in only 25% of patients. The study identified the presence of *Prevotella* spp. in 47% of patients, *Corynebacterium* spp. in 56%, *Streptococcus* spp., including pathogenic *S. agalactiae* and *S. anginosus*, oral streptococci, and *Enterococcus faecalis* in the vast majority of samples. The LefSe analysis identified seven biomarkers, including *Prevotella corporis*, *Porphyromonas*, *Streptococcus*, *Moryella*, *Criibacterium*, *Peptococcus niger*, and *Clostridiales bacterium S5-A14a*, which were enriched in the vaginal samples from patients with EC compared to those without cancer. *Porphyromonadaceae* and *Prevotellaceae* were the most prevalent bacterial families.

**Conclusions:** The taxa identified by both methods (*Prevotella*, *Porphyromonas*, *Streptococcus*, *E. faecalis*, and *Corinebacterium*), as well as the decrease or absence of *L. crispatus*, may be a hallmark of EC-associated vaginal dysbiosis. The differences in the vaginal microbiome could potentially be used for EC screening and assessing the effectiveness of therapy.

**Funding**

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P03.021.

TEST AND SCOPE TO IDENTIFY GASTRIC PRECANCEROUS LESIONS  
IN 2171 DYSPEPTIC PATIENTS

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**Objective:** The identification and eradication of *H. pylori* remain the most effective strategy for gastric cancer prevention. This study aimed to assess whether initial non-invasive *H. pylori* testing can effectively identify patients requiring esophagogastroduodenoscopy (EGD) for gastric cancer risk stratification.

**Patients and Methods:** The study was conducted between January 2022 and August 2024 in the Emilia-Romagna region of Northern Italy. 2,171 patients were included. Regardless of *H. pylori* status, patients underwent EGD with six gastric biopsies for histopathological assessment and OLGA (Operative Link on Gastritis Assessment) staging. *H. pylori* detection was confirmed using histology, culture, rapid urease test (RUT), and breath test.

**Results:** Among the 2,171 patients, 640 (29.5%) tested positive for *H. pylori*. Gastric atrophy was significantly more common in *H. pylori*-positive patients (22.2%) compared to *H. pylori*-negative ones (1.3%) ( $p < 0.001$ ). High-risk OLGA stages (III-IV) were exclusively found in *H. pylori*-positive individuals (9/640; 1.4%), with none observed in the *H. pylori*-negative cohort. OLGA stage II was present in 35 patients (1.6%), with 34 of them being *H. pylori*-positive. Logistic regression showed that age and *H. pylori* positivity were independently associated with increased risk of OLGA stage II. Smoking also showed a significant association with high-risk gastritis (OLGA stages III-IV), with an adjusted OR of 1.71 (95% CI=1.12-2.57).

**Conclusions:** The integration of non-invasive *H. pylori* testing with targeted EGD and biopsy-based OLGA staging offers a valuable approach for stratifying patients' cancer risk. In settings with intermediate-to-high *H. pylori* prevalence, the “Test and Scope” strategy is a biologically and clinically sound method for the secondary prevention of gastric cancer.

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**P03.022.**

**EXPRESSION OF INTERLEUKIN-17 RECEPTORS, IL-17RA, IL-17RC, AND IL-17RE IN GASTRIC CANCER AND ITS POTENTIAL IN CARCINOGENESIS ASSOCIATED WITH HELICOBACTER PYLORI INFECTION**

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**Objective:** Infection by *Helicobacter pylori* (*H. pylori*) promotes chronic inflammation. Dysregulation of pro-inflammatory cytokines or their receptors is common in many cancers, including gastric cancer. The Interleukin-17 receptor (IL-17R) family consists of IL-17RA, RB, RC, RD, and RE. The heterodimer of IL-17RA and IL-17RC is a receptor for IL-17A and IL-17F, while the heterodimer of IL-17RA and IL-17RE is a receptor for IL-17C. The link between IL-17 and its correspondent receptors activates pathways that

include NFκB, MAPKs, and C/EBPs to induce the expression of antimicrobial peptides, cytokines, and chemokines, which may be associated with carcinogenesis. This study investigated the expression of IL-17RA, IL-17RC, and IL-17RE in gastric tissues and correlated with the presence of *H. pylori*.

**Patients and Methods:** We analyzed 59 control subjects, 118 patients with gastritis, and 71 patients with gastric cancer. *H. pylori* detection was performed by PCR, and gene expression levels were quantified by real-time PCR.

**Results:** A significant difference was found between the positive-gastritis-group with the negative-gastritis-group for all genes studied, IL-17RA:  $p=0.0069$ ; IL-17RC:  $p=0.0041$ ; IL-17RE:  $p=0.0077$ . The expression of IL-17RA in the cancer group exhibited a statistically significant increase compared to the control group ( $p=0.0002$ ). However, a significant decrease in the expression of IL-17RE was found in the cancer group ( $p=0.0001$ ), independent of the presence of *H. pylori*.

**Conclusions:** Thus, *H. pylori* can affect the expression of the receptors. After neoplastic transformation, despite a change in the expression, there is no evident association with the presence of *H. pylori*, which is a trigger for this imbalance in gene expression.

**Conflict of interest disclosure:**

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**P03.023.**

**IMPACT OF *HELICOBACTER PYLORI* INFECTION ON IL-17RB EXPRESSION IN GASTRITIS AND GASTRIC CANCER**

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**Objective:** *Helicobacter pylori* (*H. pylori*) infection leads to persistent gastric inflammation, and the imbalance in pro-inflammatory cytokines or their receptors is frequently seen across various malignancies, including stomach cancer. The interleukin-17 receptor (IL-17R) family is composed of five members (IL-17RA, RB, RC, RD, and RE). Among these receptors, IL-17RB is the only one that shows a specific interaction with its interleukin, IL-17B. The interaction between IL-17B and IL-17RB triggers signaling pathways, such as NFκB and AP-1, influencing pro-inflammatory activities *via* ILB and TNFα, processes that may contribute to carcinogenesis. Therefore, the study set out to evaluate IL-17RB expression in gastric mucosal tissues and examine its association with *H. pylori*.

**Patients and Methods:** We analyzed 59 controls, 118 patients with gastritis, and 71 patients with gastric cancer. *H. pylori* was detected using PCR, and gene expression of IL-17RB was analyzed using RT-qPCR.

**Results:** We found a significant difference when comparing the negative control and gastritis-negative groups ( $p=0.0005$ ). There was also a significant difference in expression between the gastritis-positive and gastritis-negative groups ( $p=0.0302$ ). There was no difference between the cancer-positive and cancer-negative groups and cancer versus control groups.

**Conclusions:** Our results indicate that the presence of *H. pylori* in patients with gastritis impacts the expression of IL-17RB, however, after the disease progresses to gastric cancer, the presence of *H. pylori* does not impact the difference in expression of IL-17RB.

**Conflict of interest disclosure:**

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P03.024.

### PHYSICIANS' ATTITUDES TOWARDS THE POSSIBLE INTRODUCTION OF STOMACH CANCER SCREENING

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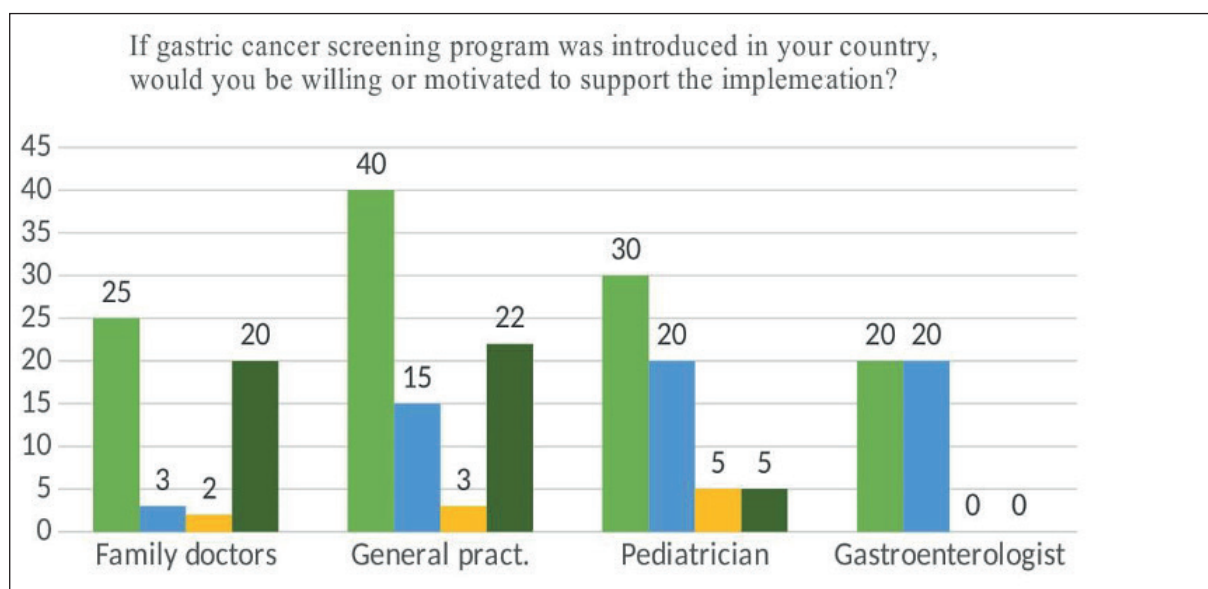
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**Objective:** In countries with a high risk of its development, the introduction of population screening can significantly affect early diagnosis and mortality reduction. An important factor in the successful implementation of screening programs is the support of doctors, as the main participants in the process. The aim of the study was to assess the readiness of physicians of different specialties (based on the TOGAS questionnaire) to support the implementation of a national gastric cancer screening program.

**Materials and Methods:** The study included 200 physicians. Respondents were asked the question: "If a gastric cancer screening program were to be introduced in your country, would you be willing or motivated to support its implementation?" The answers were coded as: fully support, rather support, neutral, rather not support, not support. The data are presented as a diagram and analyzed using the  $\chi^2$ -criterion ( $p < 0.05$ ).

**Results:** The greatest willingness to support was expressed by general practitioners and pediatricians. Gastroenterologists demonstrated the highest level of general agreement. Family doctors more often chose a neutral position, and there were also cases of expressed disagreement. The differences in willingness to support the screening program between the groups were statistically significant ( $\chi^2 = 72.45$ ;  $p < 0.001$ ).

**Conclusions:** Most physicians of different specialties are willing to support the introduction of gastric cancer screening, although the level of motivation varies depending on the specialty. This highlights the need for educational and organizational measures to increase the involvement of all participants in the healthcare system in the processes of early diagnosis of oncological diseases.



**FIGURE 1.** THIS DIAGRAM IS BASED ON DOCTORS' ANSWERS TO THE QUESTION: "IF A GASTRIC CANCER SCREENING PROGRAM WAS INTRODUCED IN YOUR COUNTRY, WOULD YOU BE WILLING OR MOTIVATED TO SUPPORT THE IMPLEMENTATION?"

#### Conflict of interest disclosure:

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P03.025.

**HYDROGEN SULFIDE PREVENTION OF *HELICOBACTER PYLORI*-INDUCED GASTRIC CANCER**

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**Objective:** Early prevention of pathological changes underlying gastric cancer (GC) development is a critical strategy, offering the most effective opportunity to limit malignant progression and improve patient outcomes. We have previously demonstrated that *Helicobacter pylori* (Hp) (cagA<sup>+</sup>vacA<sup>+</sup>) contributes to GC development by activating gastric fibroblasts toward a CAF-like phenotype, able to elicit aggressive, cancer stem cells (CSCs) related malignant transformation of LGR5<sup>+</sup> normal epithelial cells. A key mediator of these deleterious processes appears to be the NF-κB/STAT3 signaling pathway. Therefore, our aim was to investigate the protective role of hydrogen sulfide (H<sub>2</sub>S) as a potential novel strategy for counteracting Hp-induced fibroblast reprogramming.

**Materials and Methods:** Normal gastric human fibroblasts were infected with Hp (cagA<sup>+</sup>vacA<sup>+</sup>) for 120 hrs. The fast-releasing H<sub>2</sub>S donor NaHS (non-toxic 50, 100, 200 and 400 μM dose) was added each 24 hrs. Markers of activation, corresponding signaling pathways, H<sub>2</sub>S release and the activity of the enzymes responsible for H<sub>2</sub>S synthesis and degradation were determined.

**Results:** NaHS, a H<sub>2</sub>S donor, significantly reduced Hp-induced fibroblast activation and their pro-inflammatory and pro-tumorigenic secretome, inhibiting NF-κB/STAT3 axis activation and Twist expression. NaHS also restored fibroblast viability, limited Hp adhesion, reduced reinfection-induced activation and increased sensitivity of Hp to metronidazole. NaHS also reversed the Hp-induced activation promoting shifts in fibroblast sulfur metabolism without disrupting sulfur enzyme homeostasis.

**Conclusions:** These findings highlight the potential of H<sub>2</sub>S donors as a therapeutic strategy to target the NF-κB/STAT3-driven inflammatory axis during Hp infection, thereby helping to preserve tissue integrity and reducing the risk of malignant progression.

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P03.026.

**POSITIVE FECAL IMMUNOCHEMICAL TEST AND DSC CO-TESTING FOR GASTRIC CANCER RISK STRATIFICATION**

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**Objective:** Current guidelines do not recommend upper gastrointestinal evaluation in patients with a positive fecal immunochemical test (FIT) and negative colonoscopy. We aim to identify individuals at high-risk for gastric cancer (GC) using serological methods to improve early detection and prognosis, complementing endoscopic diagnosis.

**Patients and Methods:** We studied the association between *Helicobacter pylori* (HP) infection and gastric lesions in individuals who presented for gastroscopy (n=132, 13 FIT+). Risk was stratified using the DSC-score (pepsinogen, gastrin, HP serology, age, sex), and then, correlated with the diagnosis. By a proteomics approach, we investigated other serum biomarkers to improve DSC-test performance.

**Results:** HP seropositivity was 10.6%, increasing from 6% DSC-score 0, 10.3% DSC-score 1, and 16.3% DSC-score 2. Previously, the DSC-score showed an AUC of 0.723 and 70% sensitivity for detecting advanced preneoplastic or neoplastic lesions. The DSC-test in this new cohort (n=132) confirms high sensitivity and negative predictive value but low positive predictive value. At present, analysis with

additional selected serum biomarkers (HE4 and LDH) is ongoing. Recruitment of FIT-positive/colonoscopy-negative patients has started (13 enrolled, 8 with DSC-score 2 and 3 (23.1%) HP-positive).

**Conclusions:** A combined serological and endoscopic approach may support early identification of high-risk patients. Our DSC-score could be improved with new biomarker integration. However, FIT-positive individuals may identify an at-risk population for GC due to a higher prevalence of HP.

**TABLE 1. THIS TABLE SUMMARIZES THE DISTRIBUTION OF ENDOSCOPIC GASTRIC ATROPHY ACROSS DIFFERENT OLGA CATEGORIES AND OF THE SEROLOGICAL DSC SCORE (0-2). THE DIAGNOSTIC PERFORMANCE OF THE DSC SCORE IN IDENTIFYING PATIENTS WITH ADVANCED GASTRIC ATROPHY (OLGA STAGES III/IV), DYSPLASIA, OR GC IS REPORTED IN TERMS OF SENSITIVITY, SPECIFICITY, AUC, LIKELIHOOD RATIOS, PREDICTIVE VALUES, DISEASE PREVALENCE, AND OVERALL ACCURACY.**

GASTROSCOPY	SCORE DSC		
	0	1	2
Without atrophy	25	22	20
Atrophy (olga I/II)	3	21	13
Atrophy (OLGA III/IV)/dysplasia/GC	1	0	5
Sensitivity % (95%CI)	83.33	(35.88 - 99.58)	
Specificity % (95%CI)	68.57	(58.78 - 77.28)	
AUC (95%CI)	0.76	(0.67 - 0.84)	
Positive Likelihood Ratio (95%CI)	2.652	(1.68 - 4.18)	
Negative Likelihood Ratio (95%CI)	0.243	(0.04 - 1.46)	
Disease prevalence %	4.50		
Positive Predictive Value % (95%CI)	11.11	(7.34 - 16.47)	
Negative Predictive Value % (95%CI)	98.87	(93.56 - 99.81)	
Accuracy % (95%CI)	69.24	(59.77 - 77.65)	

**Abbreviations:** DSC score: Diagnostic Serological score ranged from 0 to 2, where 0 indicates low risk and 2 indicates higher risk of advanced gastric lesions. OLGA: Operative Link on Gastritis Assessment. GC: Gastric Cancer. AUC: Area Under the Receiver Operating Characteristic Curve. CI: Confidence Interval.

#### Conflict of interest disclosure:

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#### P03.027.

#### “WATCH AND WAIT” STRATEGY IN RECTAL CANCER: CLINICAL EVIDENCE AND ONCOLOGICAL BENEFITS

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**Objective:** Colorectal cancer is the most common malignant neoplasm of the digestive tract. Approximately 2 million new cases are diagnosed annually worldwide. The aim of the study was to describe a case report of a rectal tumor with complete response to neoadjuvant therapy and to correlate possible benefits of the watch-and-wait strategy.

**Materials and Methods:** After the diagnosis of invasive colonic adenocarcinoma, tubular histological pattern, ICD-O grade II and T3N0M0 staging, treatment with the chemotherapeutic agent xeloda was performed, associated with radiotherapy for 21 sessions. Radiotherapy was performed with the Conformational-3DCT technique, using a 6 MV Photon Linear Accelerator.

**Results:** After two months of neoadjuvant treatment, the lesion regressed to the point where it could no longer be seen. However, a new proctological examination was performed, which revealed scar retraction, and after a new magnetic resonance imaging (MRI) of the rectum, a complete clinical response (yTON0) was identified. The histological study showed a hyperplastic polyp and a low-grade tubular adenoma. The microsatellite instability test using the tumor suppressor antibody panel was positive for all markers. After discussion in a multidisciplinary session, the “watch and wait” approach was chosen, with regular follow-up with MRI and endoscopic examinations of the rectum.

**Conclusions:** “Watch and wait” therapy appears to be an alternative to the surgical approach, the aim of which is to avoid, mainly, the morbidity associated with the procedure to include a temporary/permanent stoma, and the consequences such as sexual dysfunction and fecal incontinence.

**Conflict of interest disclosure:**

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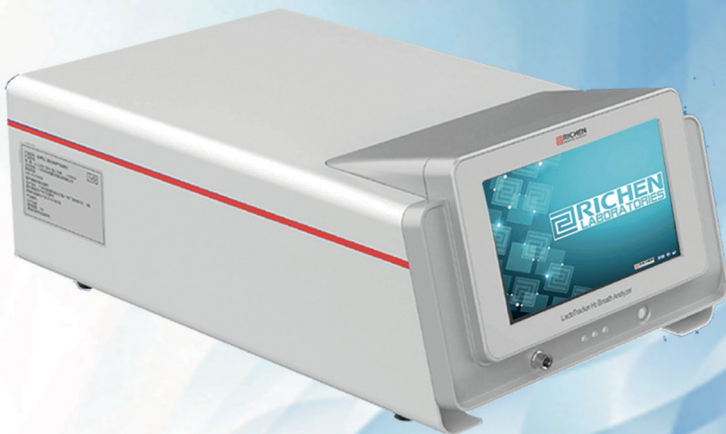


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